THE AMERICAN GAS LIGHT JOURNAL

REDMAN & KENNY, N.Y.

PUBLISHING OFFICE No. 42 PINE STREET

DEVOTED TO THE INTERESTS OF ILLUMINATION, HEATING, MECHANICAL, CHEMICAL AND GENERAL SCIENCE.

VOLUME LXXVIII. No. 19. Whole No. 1,457. | NEW YORK, MONDAY, MAY 11, 1903. | $3 PER ANNUM, IN ADVANCE.

A. M. CALLENDER & CO., Proprietors. C. E. SANDERSON, Manager.
THOMAS J. CUNNINGHAM and ELBERT P. CALLENDER, Editors.

ENTERED AT THE POST OFFICE AT NEW YORK, N. Y., AS SECOND-CLASS MATTER.

CONTENTS.

An Asterisk (*) denotes an illustrated article.

OFFICIAL NOTICES—

Twenty-sixth Annual Meeting, Western Gas Association..... 721

Wrinkle Department, Western Gas Association 721

EDITORIALS—

Briefly Told..... 722

A Just Decision—"Self-Instruction for Students in Gas Manufacture: Elementary"—Notes.

Nineteenth Annual Meeting, Ohio Gas Light Association—Official Report—Revised by the Secretary—Concluded from page 689 ... 722

Third Day, Morning Session—Report of Committee on Memorials: Edward H Jenkins; S. Milo Dole—Novelty Advertising Department—Discussion—Report of the Committee on Standard Methods of Testing Gas Appliances—Report of Committee on President's Address—Discussing Differential Rates—Transportation—Report of Committee on Next Place of Meeting—Memorandum Regarding Research Work—Election of Officers—Some Responses—Votes of Thanks—Adjourned.

A Review of the Eighteenth Annual Report of the Massachusetts Board of Gas and Electric Light Commissioners—No. III.. 729

Changes in the Gas Supply of Lynchburg, Va., by "H."..... 731

Coal Tar Pavements in Northern New England..... 732

ITEMS OF INTEREST FROM VARIOUS LOCALITIES..... 732

Testimonial to Mr. Jas. Brackenridge—Sale of the Seneca Falls and Waterloo (N. Y.) Gas Properties—Adding to its Site, Brockton, Mass.—Annual Meeting, Columbus (O.) Gas Company—Real Estate Holding Increase, Bridgeton, N. J.—Contract for the Gas Machinery Company, Cleveland, O.—Prize Competition, Denver, Col.—No State Commission for Connecticut—An Unusual Verdict—Annual Meeting, U. G. I. Company—An Interesting Decision, St. Paul, Minn.—And Other Items.

The Market for Gas Securities..... 734

[OFFICIAL NOTICE.]

Twenty-sixth Annual Meeting, Western Gas Association.

OFFICE OF THE SECRETARY,
NEW ALBANY, IND., April 27th, 1903.

The Twenty-sixth annual meeting of the Western Gas Association will be held at the Claypool Hotel, Indianapolis, Ind., May 20, 21, 22, 1903, and will be called to order by its President, Mr. A. H. Barret, of Louisville, Ky., at 10 A.M., Wednesday, May 20.

The managers of the Claypool Hotel announce a rate, on the American plan, of $3 per day and up; on the European plan, a rate of $1.50 and up.

The English Hotel, located about one block away, and which is under the same management, offers rates on the American plan of $2.50 per day and up; on the European plan, $1 per day and up.

The Claypool is new and modern, with ample accommodations for all.

The sessions of the Association will be held in a room provided by the Claypool Hotel.

The Executive Committee has arranged for the following papers:

Naphthaline, by Dr. W. H. Birchmore, New York city.

Gas and Meters, by Mr. John McIlhenny, Philadelphia, Pa.

The Most Economical Yield per Pound of Coal, by Mr. James Somerville, Indianapolis, Ind.

Increasing the Sale of Gas to Existing Customers, by Mr. B. W. Perkins, South Bend, Ind.

Municipal Ownership, by Mr. A. E. Boardman, New York City.

Heat Conductivity of the Different Clays, by Mr. H. A. Wheeler, St. Louis, Mo.

The High Pressure Gas Main under the Mississippi River at New Orleans, by Mr. Thos. D. Miller, New Orleans, La.

Low Candle Power, by Capt. W. H. White, New York City.

Wrinkle Department, Edited by Mr. W. E. Steinwedell, Cleveland, O.

Reports will be made by the following committees: On Specifications for Gasholders; World's Fair Committee.

The Western Passenger Association, from all points in Eastern and trans-Missouri territories, Central Passenger Association, Trunk Line Association and the Southeastern Passenger Association have granted rates of one and one-third fare for the round trip, conditional on 100 certificates being presented to the Secretary for indorsement. The territory embraced by the above Association includes all State divisions east of the Mississippi river except New England. The following States and territories west of the Mississippi river are in the territory covered by the Railway Associations granting reductions: North Dakota, South Dakota, Minnesota, Wisconsin, Iowa, Missouri, Nebraska, Kansas, Oklahoma, Indian Territory, Colorado and Utah.

All persons attending the meeting will purchase a first-class ticket at starting point, paying full fare for same, obtaining from the agent a certificate, stating that the person whose signature appears on same has purchased, at full tariff fare, one first-class ticket to Indianapolis, which certificate, after it has been signed by the Secretary of the Association and a representative of the Passenger Association, will entitle the purchaser to a one-third rate returning home.

Apply to the ticket agent at least 30 minutes before departure of train. All station agents do not have a supply of certificates, but they can be obtained by request, if notification is made in time. Persons outside the territory embraced by the Passenger Associations mentioned above should purchase a ticket to the nearest point within one of said Associations, and from there purchase a ticket to Indianapolis, obtaining a certificate which will, if properly indorsed in Indianapolis, entitle them to a one-third fare returning to the place from which certificate was obtained, provided it is indorsed by a representative of the Passenger Association, who will be present at the meeting, and the undersigned.

Those who live in Western Passenger Association territory should consult the local agent several days in advance of purchasing ticket to Indianapolis, in order to reach an understanding with the different roads as to junction point, via which they will make rates applicable. Some local agents sell to junction points, where delegates attending the meeting will be honored in the same manner as those held by the delegates themselves.

All queries sent to the Secretary for the Question Box will be assigned, in advance of the meeting, to members for answer.

The Secretary will be pleased to answer any question relating to the meeting, and will mail application blanks for membership to applicants. The membership fee is $10, which includes the first year's dues; annual dues $5 thereafter. The Association publishes and distributes, free of charge, to its members the Proceedings of the Association, which alone is worth more than the annual dues.

Yours truly,
JAS. W. DUNBAR, Sec'y.

[OFFICIAL NOTICE.]

Wrinkle Department, Western Gas Association.

WESTERN GAS ASSOCIATION,
OFFICE OF THE WRINKLE DEPARTMENT,
721 Citizens Building, Cleveland, O.

To the Members of the Western Gas Association: The Wrinkle Department is now ready to receive contributions for the 1903 collection, and I would thank you to please send a sketch or description of any new device or method you may have to the above address.

Any sketch, photograph or drawing, accompanied by a written explanation, of a new idea will be gratefully received, and it is hoped that you will comply promptly by favoring us with a contribution.

Respectfully,
W. E. STEINWEDELL,
Editor Wrinkle Department.

LIBRARY OF CONGRESS. MAY 11 1903 SMITHSONIAN DEPOSIT.

BRIEFLY TOLD.

A JUST DECISION.—Just before going to press we received from a correspondent, who wrote from Peoria, Ills., under date of the 6th inst., information to the effect that the Peoria (Ills.) Gas and Electric Company had been successful in the suit brought by the authorities of Peoria to fix the maximum selling rate for gas in that city, according to an ordinance adopted by them in 1900. The decision handed down by Special Master in Chancery, Mr. I. C. Pinckney, who was appointed by Judge Humphrey, of the United States Court for the District, to hear the case, has the following salient points—naturally the Company's officers, Messrs. Clark and Little, and their attorneys, are much elated over the outcome, which is of exceeding interest to the gas fraternity of the country:

"First, that the exercise of the right claimed by the city must be reasonable; second, that the question of reasonableness of such a right is for judicial determination—that is, that neither the city nor the legislature of the State itself has the right to fix a rate in such a manner that the courts cannot inquire into its reasonableness; third, that in determining the cost of the manufacture and distribution of gas, the depreciation of the plant and a reasonable interest on the money invested are proper elements of such cost; fourth, that a federal question is clearly involved because under the facts in evidence the enforcement of the ordinance would necessarily amount to a taking of the complainant's property without due process of law." Our correspondent continues: "The case arises out of an ordinance passed by the City Council of the city of Peoria on Sept. 4, 1900, which provided that the maximum rate thereafter to be charged by any Gas Company doing business in the city of Peoria should be 75 cents per 1,000 cubic feet, that the gas furnished should be of uniform 18-candle illuminating power at the point of consumption, and provided heavy penalties for violation of the ordinance. The Company secured a temporary injunction against the enforcement of the ordinance and the case was bitterly contested for more than 18 months. Testimony of distinguished experts from all over the United States was adduced by both parties."

"SELF-INSTRUCTION FOR STUDENTS IN GAS MANUFACTURE: ELEMENTARY."—Such is the title on the cover of a modest little volume of 134 pages, published by the *Gas World*, London, England. It contains in handy shape a set of articles which appeared in serial form during recent issues of the paper just noted. The name of the author is not given, but it is stated that credit is due to Mr. W. E. Price, Assoc. Mem. Inst. C.E., and President of the Southern District Association of Gas Engineers and Managers, for having inspired the publishers of the *Gas World* to employ "a gas engineer and chemist of knowledge and experience" to write up the subject treated for the benefit of those students whose present means did not permit them to acquire information in the several more pretentious, as well as expensive, works advertised heretofore. The first chapter opens with a description of the process of carbonization, and the last closes with a practical illustration of how to proceed to estimate and arrange for the piping of the premises of a consumer. The intermediate chapters touch upon the various steps of manufacture and apparatus employed in a coal gas works, followed by a similar treatment upon subjects connected with the distribution of gas—viz., main and service laying, meter setting, etc. The whole matter, which is presented in the form of questions and answers, reminds one very much of the plan of the last Question Box of the Ohio Gas Light Association. The information put forth is given in plain, easy-to-be-comprehended language, and it impresses the reader as a book which cannot help to be of much use to primary students of the gas profession. Indeed, some of the examples given and worked out in the book may prove interesting to many a person old in the business, but whose lines of duty have not carried him perhaps beyond the retort house purifying room or pipe shop, and as an educator for such men would in some cases no doubt be far more appreciated, at any rate be more useful, than a free turkey at Thanksgiving or Christmas. This book gives a far better idea of the requirements of the practical side of the gas business to students in technical schools, and in a more easily to be acquired shape, than can be found in any other work with which the writer is acquainted; of course, always bearing in mind the elementary idea.—F.

NOTES.——

MR. JAMES GIBBONS, JR., has been appointed Superintendent of the Penn Yan (N. Y.) Gas Light Company. He was in charge of the plant of the Seneca Falls and Waterloo (N. Y.) Company, the properties of which were recently acquired by the Interurban Company, of Geneva, N. Y.

MR. M. J. HIGBY, of Burlington, Iowa, has been appointed Superintendent of the Belvidere (Ills.) Gas and Electric Company.

MR. GEORGE L. DUNBAR, formerly Superintendent of the gas division of the properties of the Fond Du Lac (Wis.) Street Railway and Light Company, has accepted a responsible position in connection with the distribution department of the Laclede Gas Company, St. Louis, Mo.

[OFFICIAL REPORT—REVISED BY THE SECRETARY.—CONCLUDED FROM PAGE 689.]

NINETEENTH ANNUAL MEETING, OHIO GAS LIGHT ASSOCIATION.

HELD IN THE GRAND HOTEL, CINCINNATI, O., MARCH 18, 19 AND 20, 1903.

THIRD DAY, MORNING SESSION.

The Association met pursuant to adjournment at 9:30 A.M., March 20. After calling the Association to order the President asked for the

REPORT OF THE COMMITTEE ON MEMORIALS,

which was read by Mr. John D. McIlhenny, as follows:

EDWARD H. JENKINS.

We have to chronicle the death, since the last meeting of the Ohio Gas Light Association, of two members, Mr. E. H. Jenkins and Mr. S. Milo Dole.

Mr. Jenkins who was well known to the Association, and to the gas fraternity at large, was born at Indianapolis, Ind., March 4th, 1853, and died in San Antonio, Tex., June 25th, 1902. His first experience in the gas business was at the age of 16 years, when he entered the employ of the Indianapolis Gas Company. After reaching the position of Assistant Superintendent with that Company, he was successively Superintendent of the gas companies at Elkhart, Ind., Cedar Rapids, Iowa, Columbus, Ga., and Covington, Ky. Later he became Superintendent of the Buffalo (N. Y.) Gas Light Company, and in 1899 he became President and General Manager of the San Antonio (Tex.) Gas and Electric Company, and also of the Traction Company of that city.

Mr. Jenkins was an honored President of this Association, and received marks of distinction from other Gas Associations. His genial and affable manners made him a host of friends. These qualities, combined with his well known ability, were particularly displayed in many difficult situations, all of which brought success to him. His standing at all times was high in any locality in which he resided.

S. MILO DOLE.

Mr. S. Milo Dole became a member of the Ohio Gas Light Association in 1902. A young man of great promise, his career has been ended by Divine Providence, who controls all of our affairs. He was born October 2nd, 1865, and died September 24th, 1902. He commenced work, in 1877, in a printing office in Adrian, Mich. His father dying shortly thereafter, the son thenceforth supported the family. While busy throughout the day it is worthy to mention that, through the aid of correspondence schools and private instructors, he acquired a complete college and philosophical education. He also studied law. In 1890 he accepted a position with the Adrian Gas Company, and steadily advanced until he became one of its chief officers.

Mr. Dole was a respected citizen of Adrian, active in its public and religious welfare. His life was not in vain.

Respectfully submitted, J. W. R. CLINE, JNO. D. MCILHENNY, } Committee.

On motion of Mr. Persons, seconded by Mr. Butterworth, it was ordered that the report of the committee be accepted and spread upon the minutes. It was also ordered that the committee be accorded a vote of thanks for their services.

NOVELTY ADVERTISING DEPARTMENT.

The President then called upon Editor B. W. Perkins, who submitted the following budget regarding the Novelty Advertising Department:

Mr. President and Gentlemen of the Association: The following advertising novelties are all that it has been possible to get from members of the Association, and while this number is not as large as I would have liked, there are a number of very good ones which if followed will be productive of good results.

NO. 1, by MR. JOHN D. MCILHENNY.

No. 1. Tags.—During the past summer round tags were used for advertising gas ranges with considerable effect, at Norristown, Pa., and other points. These tags were made of stiff pasteboard, 2 inches in diameter, and bound with a rim of tin for stiffness. A short string was tied to each, through a hole punched in the upper part of the pasteboard. The printing upon two of the tags will be seen from the samples inclosed, one side being in red and the other in blue.

The tags were obtained, printed complete, from a leading maker of tags, at $2.50 per 1,000, in a 5,000 lot. They were distributed to children leaving school and also given away generally. They caused considerable talk. Many children came to the gas office to ask for them, and

we think the advertisement was the most effective used during the season.

No. 2. Statement Slips.—Statement slips were first used, I believe, in Philadelphia, a number of years ago, at the time the city managed the gas works. There being a very general complaint that the statement takers estimated the consumption in a nearby convenient resting house, instead of going to the meters, a statement was devised. It has several good points:

USE A GAS HEATER

Gas Company of Montgomery County.

Norristown,..... 190

Statement of Meter this date,.....00 *Cubic Feet.*

.....*Inspector.*

The gas consumed is the difference between this statement and the previous statement.

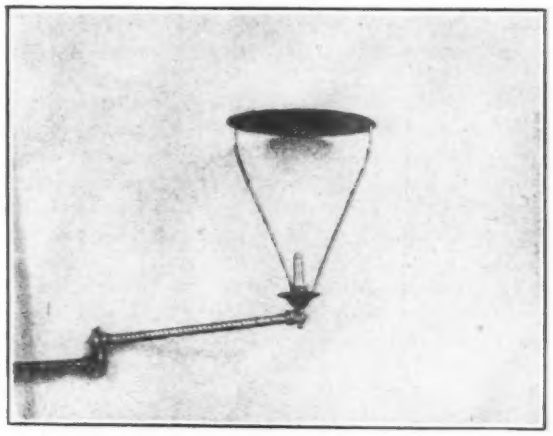
IN THAT COLD ROOM.

The consumer has evidence that the meter was actually read, and is given an opportunity to make a comparison with the previous statement. The inspector leaving it can also avoid conversation as to the amount of the bill, etc. It also has a tendency to make the inspector more careful in his reading. The expense is very slight, and but little time is consumed in writing out the slip. The inspector each morning before starting out dates the slip with a rubber stamp, and also so marks his name.

The slip further affords a very excellent means of advertising. The upper and lower margin of the front can be utilized as well as the back. A sample slip is shown, the advertising being changed to suit the season.

One gas company uses statement slips regularly, but instead of employing the back for advertising, has a dial printed upon it without hands. The request is made, if the statement of the meter does not compare with the written statement, that the consumer will mark the dial according to his reading and send it to the gas office.

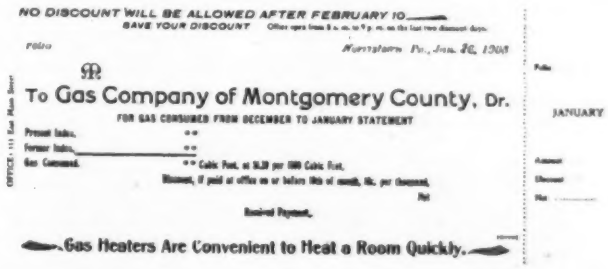
3. *Poor Man's Stove.*—The Poor Man's Stove is a circular sheet, of about 20-gauge galvanized iron, supported by substantial tinned iron wire over an ordinary gas burner. There is no interference with the light. Over 1,000 of these were given away in Norristown in the past winter, and while it is at times difficult to ascertain direct results, yet the advertisement was considered well worth the cost, namely, about 6 cents each. With them was given away a leaflet.



There is some efficiency in the hot plate radiating heat as well as checking and distributing the upward flow of the hot products of combustion. The principal advantage, however, of the argument is that it may induce the use of the ordinary gas flame in the winter time, and in very mild weather, for heating purposes.

4. *The Use of Gas Bills for Advertising.*—There is nothing new in this, except the use of one of the margins of the bill for an advertisement in red ink, or to attract attention to the back of the bill.

In reference to gas bills, the sample is inclosed more for a wrinkle than an advertising novelty. It will be seen that no dates of meter readings are given, thus avoiding considerable clerical work. Instead, the words, "For Gas consumed from December to January Statement," for example, are employed, the bills being printed each month and dated, say, January 26th, which is an average date of the meter reading.


NO DISCOUNT WILL BE ALLOWED AFTER FEBRUARY 10.
SAVE YOUR DISCOUNT

To Gas Company of Montgomery County, Dr.

FOR GAS CONSUMED FROM DECEMBER TO JANUARY STATEMENT

JANUARY

Gas Heaters Are Convenient to Heat a Room Quickly.

It is very rare that a consumer desires to know the date upon which his meter has been read. This can be obtained from the statement slips left at the house or by inquiry at the gas office. No complaint has been found with omitting the dates of reading and much time has been saved in the office.

No. 2, by MR. R. SHACKLETT,

who gives the following, which might be used as an advertisement for gas: "The Hotel Gregg, of this city, erected a very fine structural iron portico with the name of the hotel in mosaic glass panels. Surmounting the whole structure is another panel of a similar design which bears the legend, "Adrian is the home of the Page Fence." This has attracted a great deal of attention from strangers in the city.

No. 3, by MR. F. H. SHELTON.

I quote an idea coming from the office of the New York and Richmond Gas Company, Stapleton, N. Y., T. O. Horton, Manager.

Where an outlet is left capped in a kitchen, or elsewhere, in the many house-piping jobs that the Company cover, they insert a little circular advertising "back-plate" against the wall over the thread projecting, holding the same in place by a ⅜-cap screwed on tight. The plate makes a little better finish and has the words, "Buy a gas range," or other motto desired. The plates are of cast iron, can be made for a few cents a pound and painted, working out to a cost of perhaps 2 cents a piece. The diameter is about 3 inches.

No. 4, by MR. C. L. STEENBERGEN.

I removed the sides and top of an ordinary 3-light meter, and the covering of the valve chest, substituting glass in the place of them, and placed it in my show window, passing the gas used in my office through it, thus showing the public that a gas meter was not a tin box full of wheels which the gas company used to swindle its customers.

"I have found it at all times more than satisfactory and have yet to find a dissatisfied customer that, after he has been shown how his meter worked, who did not go away satisfied that it was entirely different from what he thought it was and that it would register correctly."

No. 5, by Mr. J. M. Robb,

gives the following, a part of which was reported at a previous convention:

"In putting out the advertisement, the only apparatus required is a large box kite and a streamer with the advertisement written on it. The kite is sent up into the air and the wind unfurls the streamer, making it very legible, providing the banner is made of the right size and is not sent up too high. In the instance which came to the writer's attention this advertisement was used at night and a searchlight was thrown upon the banner."

No. 6, by Mr. Geo. Whysall.

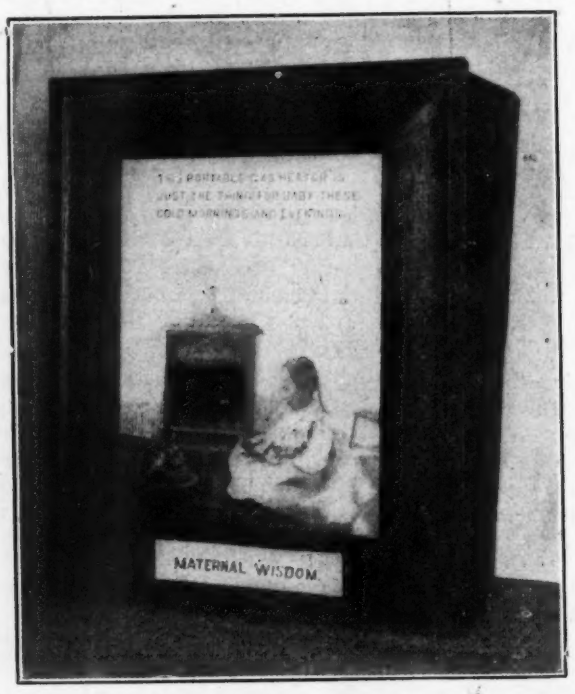
"First, a thimble made of aluminum, on which is inscribed 'Cook with Gas.' These thimbles are distributed among the ladies occupying houses in which our solicitors and canvassers are endeavoring to place gas appliances. The thimbles are made up in assorted sizes. Second, a steel key ring, upon which is an aluminum blank Yale lock key and a name tag made of aluminum, on which is printed 'Key to the Successful Use of Gas and Electricity, Evansville Gas and Electric Light Co.' The method of using the key rings is to have them dropped on the streets, in public conveyances, and, in fact, wherever they may be noticed and picked up. I also inclose an advertisement which will explain itself. The Boston Store of this city is a department store and has an attraction arranged with a man to give cooking demonstrations, and at the same time permitting him to sell to the public copies of recipes. The stove mentioned is loaned to the Boston Store by this Company. They pay for the gas consumed."

No. 7, by Mr. L. Kahn,

who sends the following that can be used as a newspaper "ad.:"

"*Banker's Experience in Getting Servants.*" *They Demand Unheard of Conditions, which are Granted.*"

Philadelphia, Jan. 23, 1903.—Suburbanites have to deal with the servant girl problem with a vengeance. Good servants along the main line are as scarce as anthracite coal, and the result has been increased



wages and unheard of demands on the part of applicants. The experience of a prominent banker living beyond Rosemont illustrates the situation. His family lost two servants and it was necessary to procure two others. Employment agencies and advertising were tried without success. Finally, two sisters recommended by a friend of the family came along, one to take the place of housemaid and the other as cook.

When telling about it the banker explained that they had been paying the departed help $6 and $6.50 respectively per week, but in this case $8 was demanded and we were not disposed to protest, as we needed the help seriously; but that was not all. Before the contract was closed the following conditions had to be agreed to:

1. To furnish our private carriage to take them to church on Sunday in Philadelphia, and pay their fare in and out from the city.

2. To let them have exactly the same kind and quality of food as served to the family

3. To provide a first-class gas range for the kitchen.

We were quite willing to concede the third condition, but we thought, and think now, that the others were as new as they were tough. However, the girls are with us, and we hope for the best.

No. 8. Mr. F. G. Corbus

sends in a variety of slips, booklets, etc., used by the Welsbach Company for distribution. He makes the following suggestions which, if followed out, could only be productive of the very best results, and I think they are worthy of more than passing attention. He says:

"The distribution of advertising matter is an important feature. Mailing slips are comparatively inexpensive. All gas companies have close friends amongst the various merchants in their respective cities, and I have no doubt they could arrange with certain of these merchants to inclose with bills, letters or packages, more or less of such matter as they might see fit to issue. This would be particularly true if the advertising matter were of such character as to incidentally do the merchant a little good. Best results are accomplished not by spasmodic work, but by constantly keeping a particular product or device constantly before the people."

No. 9. Mr. M. W. Malone

sends a newspaper clipping which will explain itself. It is hardly necessary to state that gas could be utilized quite as well as electric lights:

"Last night the residents of the capital city who happened to be in the vicinity of the 200 block on East Main street were surprised indeed at the brilliancy of that section of the business portion of the city, as the block was a blaze of electric light. The 100 block, with a large and brilliant illumination furnished by the Madison (Wis.) Gas and Electric Company, and the numerous other electric signs of business houses, looked absolutely pale when compared with the neighboring block immediately below.

"Although the city maintains an electric arc lamp at each end of the block, the merchants have felt for some time that more light was needed, and the illumination displayed for the first time last evening is the result of the arduous work of L. M. Rhodes, of the firm of Dresden & Rhodes, who not only originated the project, but enlisted the co-operation of the other business men in the block, with several others adjoining, and carried the scheme to a successful denouement. Five Nernst lamps of the largest size made are suspended in the middle of the street about 50 feet apart, and with the city arc lamp at each end of the block give a total illumination of 10,400 nominal candle power

"It is doubtful if there is a brighter block anywhere in the United States than the one in which these business men have their commercial homes. So far as is known, Madison is the first city in which the famous Nernst lamp was used for street illumination, and the merchants who have by their liberal spirit made this possible are worthy of emulation. All the business men, without regard to the fact whether their places of business are open evenings or not, have signed the contract with the Madison Gas and Electric Company, and will bear their share of the expense.

"Even the mere fact that the movement was on foot has caused other business men to look into the matter, and there is little doubt that other blocks will soon be equipped with these brilliant lamps. The contract calls for illumination every night in the year from dusk to 10 P.M."

In addition to the above clipping he says:

"As yet ye have only lighted this one block, but we already have the signatures of the merchants in the adjoining block to install 5 more of the 6-glower Nernst lamps, and, judging from the amount of talk being done, I would not be surprised if we would be able to get a dozen or more of the blocks in Madison before the thing lets up."

No. 10, by Mr. Irvin Butterworth.

"I send you herewith a photograph illustrating a novelty advertisement, such as we have recently put into use here. It consists of a transparency, that is, a photograph on glass, illustrating a gas stove and advertising its merits. The transparency is framed heavily in black and attached to the back of the frame is a box in which several incandescent electric lamps are placed in such a way that when the current is turned on them the transparency is brilliantly and suitably illuminated. The picture is then hung in our office window, or in any other suitable window in the city, and every night is lighted up for the benefit of passers-by. This makes a very attractive and effective advertisement and few people pass it by without looking at it."

No. 11, The Connelly Iron Sponge and Governor Company

sends an attractive advertisement which cannot be described, but will have to be seen, together with one that was issued by the Gleason Company, and the Phœnix Glass Company, which will make very attractive matter for use in the mails.

No. 12.—The following clipping, taken from *Light*, can be remodeled into a very attractive newspaper advertisement:

The Winter has Coming Peoples Want to Keep Warm.

I deal below mentioned fuels brought directly from mines and sale at few profited prices showed below.

Lamp.	Bluff.	Settlement.
1 Saimioti Smokeless Coal A Ton.....	925	895
2 Kiushiu Coal A Ton	1,250	12.00
3 Iwaki First Class Coal A Ton.....	910	880
4 Iwaki Second Class Coal A Ton	820	790
5 Gas Cokes A Ton.....	1,250	12.00

Order Drop A Card To K. Morikawa, *Ishikawa Nakamachi Nichome, Yokohama.*
Also Lime, Plaster, Cement, Bricks.
Will be promptly delivered to your Common Ded Place.
4

No. 13, The Suburban Gas Company, Darby and Chester, Pa.,

uses a large fan on which is printed appropriate matter concerning gas stoves, with cuts of same. This is used for general distribution among the residents and forms a very attractive advertisement.

No. 14, The W. M. Crane Company

send a variety of novelties, one in the shape of a copper range boiler, which forms the cover of a booklet, another in the form of a button showing a gas range, another in the form of a small tin box, which can be used for holding various small articles, etc., etc. They also send in one which is worthy of special mention, although it has been spoken of in one of the technical papers. It is a square card cut out of nice material. Through a perforation in the corner is a small bow of blue ribbon, and on the card is printed in nice script, "If you love your wife, buy her a gas range." As has been mentioned, these can be sent by mail generally, or kept and sent to young married couples, immediately after the ceremony.

No. 15.—A knife sharpener, the contributor of which is not known, makes a good advertisement, however, and as it can be put to a useful purpose, it is likely to be kept and seen very often.

No. 16, The Detroit Stove Works

sends out a variety of stuff, such as flat iron cleaner, pocket mirror, memorandum book, book of puzzles, etc., etc.

No 17, South Bend, Ind.

X-ray cards for distribution among the children, a fine "Ad." that will have to be seen to be appreciated. Three ring puzzles, magic butterflies, string puzzles, stickers which the fitters stick onto everything in town, large seals 4 or 5 inches in diameter, having appropriate matter printed on each side, which are suspended from step irons on poles, harnesses, buggy tops, gas fixtures, and in short any place which they can be hung from. We are also contemplating the use of captive gas balloons, to hold about 6,000 or 8,000 feet, from the bottom of which will be suspended a large rectangular sign. It is proposed to thoroughly advertise the fact that the gas company

will have a balloon ascension and then have the ascension on a day when the school children will be able to witness it.

Another good advertisement was used by a hardware firm in this city. It consists of a card 3 inches square. The trick is to cut 1 square inch out of the corner, and then by cutting the remainder in three pieces to make an exact square again. A prize is offered for a correct solution, and it is a very good advertisement that attracted considerable attention.

Discussion.

The President—You have heard a very interesting paper containing a large amount of valuable information. Are there any questions to be asked or any remarks upon this paper? I think all of us appreciate the Novelty Advertising Department, and find it of much interest and advantage, particularly so when we have had time at home to study it over and appreciate the advantages there are to us in adopting and utilizing some of the valuable suggestions made by the Editor.

On motion of Mr. Persons, seconded by Mr. Butterworth, a vote of thanks was tendered to Editor Perkins.

Mr. Butterworth—If it is in order, I would like to make one or two comments on matters of management or policy which he suggests. For instance, page 43, in second paragraph, he says: "The request is made, if the statement of the meter does not compare with the written statement, that the consumer will mark the dial according to his reading and send it to the gas office." I do not think that would be very good policy. Meter readers are liable to make mistakes, and instead of giving the consumer the impression that errors are liable to occur, I think we should give our consumers the impression that they are not liable to occur. We have here at least an implied statement that errors are very liable to occur in our business, which I think is very bad policy. I simply give that as my own personal opinion for what it is worth. Referring to page 44, top paragraph, my judgment would be that instead of skimping our gas bills and letting them show as little as possible, I would like to make my gas bills so plain that any consumer, however stupid he might be, would understand just what he meant, what period they covered and all about them. I would make them so plain that the wayfaring man, no matter who he be would understand them. Instead of leaving off the dates of meter readings, and thus avoiding considerable clerical work, I think it would pay to employ clerks to have the gas bills in such condition that they may be easily understood by the consumer. These remarks of mine are simply by way of suggestion as to policy and not intended in any way as criticisms.

Mr. Stone—I agree with Mr. Butterworth with regard to the matter of policy. It is better for the gas company's business to be wide open, plainly stated and easily comprehended. We oftentimes have one month that is longer than another, and the consumers want their gas bills explained to them. If you have the dates on the bill it is a comparatively easy matter to explain. I think sometimes we do not write our advertisements properly and sometimes give the wrong impression. I saw in a magazine a few months ago—a magazine that purports to be a gas advertising magazine—an advertisement in which the reading was something like this: "The oven of our stove does not explode." The inference from that reading is that the ovens of every other stove is liable to explode, and the customer may say: "I thought gas stoves did not explode. I thought there was no danger connected with gas stoves, but I would infer from the reading of that advertisement that there is

danger of the oven exploding." And then the gas man is up against it. I think we should be more careful about the reading of our advertisements and the inferences that may be drawn from such reading. I think also the makers of gas appliances should be more careful about the st.tements that they make. They can hold up the good qualities of their goods just as much as they want to, but for heaven's sake don't show up the bad qualities of the goods of the other fellow.

Mr. Persons—I think Mr. Stone is stretching the point. I don't believe people read advertisements to amount to anything.

The Secretary—Oh, yes: they do.

Mr. Persons—I do not believe the ordinary advertisement in a local paper or magazine—except a general magazine that is circulated broadcast—does much good, unless it is done on a scale large enough to attract a great deal of attention. The ordinary small display advertisement, of 2 to 6 inches, I don't believe does as much good as one postal card would do or as a half day of soliciting would do. However, I do believe in general magazine advertising. It attracts general attention throughout the United States; but if you make a large display advertisement, or confine yourselves strictly to reading matter at 20 cents a line, I think your advertising is practically a loss. I do not think it makes much difference what you put in an advertisement under such circumstances.

The President—I will now call on Mr. Doherty for the

Report of the Committee on Standard Methods of Testing Fuel Gas Appliances.

Mr. Doherty—I have here a report which we would like to have the Association accept, although the report is not entirely completed. We cannot possibly have it completed before the close of this meeting. Therefore, I am going to suggest the adoption of it with leave granted to the committee to revise and correct it as they deem advisable At a meeting of the Executive Committee on Tuesday night a committee on the standard methods of testing fuel gas appliances was appointed, consisting of Mr. Franklin, of Cincinnati; Mr. Stone, of Ashtabula, and myself. This committee have done some very hard work on this problem. They find that they have a difficult task to master, and they do not think that they have as yet mastered it, but they do think that they have made a good start. They called together some 10 or 12 members of the Association this morning, at 8 o'clock in this room, and we worked diligently on the problem until the convening of this session of the Association. I will read the report so far as it has been formulated, although I say there are many matters which we will desire to still further revise and correct as well as to add some new matter.

[The revised and final report has not been received.]

Discussion.

Mr. Doherty—We do not want to go into a discussion of this report at this time as it is not completed. I consider it, however, the most important matter that this convention has to consider. Therefore, at the proper time, I would suggest its adoption and that the power be granted to the committee to make such changes as in its discretion would seem advisable, and to revise the report so that it will be readily understood and easily followed by anyone.

The President—You have heard the report of this committee. I am sure it covers an important field, much more so than we have been able to appreciate probably on first reading. It is a subject that should be considered carefully. I think Mr. Doherty's suggestion a good one, that the committee be given authority to further revise and correct the report, if the committee so desire. Any discussion on the report will now be in order.

Mr. Persons—I move that the report of the committee be accepted and the committee continued with discretionary power to revise and correct the report wherever in its judgment it seems wise so to do. I do not think it is a matter that we can take up and discuss now, until the report is submitted to us in printed form.

Mr. Butterworth—I was going to ask, Mr. President, if it is the intention for this committee, or a subsequent committee, after these specifications shall have been adopted, to take up the testing of appliances under these specifications and in accordance with them? What is the intention with reference to appointing a committee or commission to take up the testing of appliances in behalf of the Association and in accordance with these specifications, or whether each individual member may or may not follow them as he chooses?

Mr. Persons—I think that the report of this committee will be for independent use. I do not believe in using the Association to advertise anybody's business. When we come to making a test of different appliances and making a report on them we are going into the advertising business. I do not believe in advertising that way at all.

Mr. Schwarm—My understanding of the appointment of the committee was simply this, that some form or method for the standard testing of all sorts of gas appliances be devised by the Association exclusively for the use of its members, and in the interest of no particular appliance, but for the use of everybody connected with this Association.

The President—I think the last two gentlemen expressed the idea we had in view in the appointment of this committee last year. It was the intention, as far as I am aware, to let it go no further than simply standardizing the method of testing apparatus and gas appliances, so that anyone could carry it out for himself. Are there any further remarks? If not the motion before the house as I understand it is that the report of the committee be accepted, that the committee be continued, and that discretionary power be granted to the committee to correct and revise the report as in its judgment seems wise to do, and that the report be published the same as if already adopted by the Association.

The above motion was then duly seconded and unanimously adopted.

Mr. Doherty—I agree in a measure with what Mr. Butterworth and Mr. Persons said. This Association does not want, and it cannot afford, to lend itself to advertising anybody's goods, but at the same time there are a great many men who may not be equipped for making a proper test of gas stoves. Now I think if this report is spread upon the minutes of this Association and the committee properly handles this important question, to the satisfaction of the members of this Association, it will be adopted by the entire American gas fraternity, and probably by the European gas fraternities as well. The Association work need not stop there. I think it will be its duty to bring out the results by using this system of testing. I think probably the Association could take up the question of testing these appliances, because that is the proper method of securing improvement. Unless these specifications are used they will do nobody any good. I do not think anybody need have any fear about this Association lending itself to any advertising scheme. It has not in the past, and I believe it will not in the future.

The President—The next business upon the programme is the

Report of Committee on President's Address,

which Mr. Butterworth read as follows:

To the Ohio Gas Light Association: Your committee commends the address of your President for its businesslike directness and conciseness. The opinions of so active and progressive a gas manager, who is a man of accomplished deeds, rather than untried theories, are valuable, and carry weight by their mere statement, not needing elaboration or lengthy argument. It is especially significant that your President points out to us that the prosperity of our business may not be dependent upon the maintenance of high prices for gas, but, on the contrary, it may lie along the lines of low prices. In this connection he brings up the most important question of differential rates, and advances the rather novel suggestion that there should be two prices for gas, one for cooking and lighting and the other for heating.

Your committee considers that the question of differential rates is one of the most important that now confronts us, and, therefore, recommends that as much as possible of the remaining time of this convention be devoted to its discussion in open meetings, in order that a free and full interchange of views may be had, to the end that we may receive the benefit of the combined judgment and counsel of all our members.

The advantages of high pressure distribution are also touched upon, and in view of the importance of this subject we recommend that, if time permit, it also be given further consideration at this meeting.

J. T. Lynn,
Irvin Butterworth, } Committee.
B. W. Perkins.

Mr. Butterworth—I would say that this report was prepared early yesterday morning, since which time the Association has, anticipating our recommendation, given further consideration and discussion to the subject of high pressure distribution. It has not, however, touched upon or discussed, to the extent its importance merits, the question of differential rates.

The Vice-President—Gentlemen, what action shall be taken upon the Report of the Committee on President's Address?

It was then moved, duly seconded and unanimously adopted, that the report of the committee be accepted and spread upon the minutes of the Association.

Discussing Differential Rates.

The President—Gentlemen, as there are no other pressing matters before us now, I think it will be well to take up the recommendation

contained in the report of the committee in regard to differential rates, which they recommend be discussed in open session. In order to start this discussion I will call upon Mr. Butterworth for a few words.

Mr. Butterworth—I have not in my mind, if allowed, any remarks that are worthy of mention. I think the discussion should be started by someone who has given this question more consideration than I have. There are a great variety of opinions on it, and there must be some best way, although local conditions may affect it. There may not be any best way for universal adoption. As in many other matters connected with our business, local conditions may govern in this instance also. I think the public mind has been educated to the idea that differential rates for almost any commodity or service based on quantity are just, and that differential rates based upon the purpose for which the commodity is used strikes them as being unjust and unreasonable. I would make that comment upon it. I have no very pronounced theories to advance on the subject.

Mr. Perkins being called on by the President said: I have nothing to say, Mr. President, I believe. I think the matter is more local than general. There is a great diversity of opinion as regards differential rates, and I should say the matter would be determined more by local conditions than anything else. I have never been a believer myself in differential rates to any great extent, except as based upon quantity. I have always thought that gas is worth just as much to burn in a stove as it is worth to burn for illuminating purposes. So far as we are individually concerned, I think we have pretty nearly proved it.

Mr. Whysall—I am inclined to the opinion that it is purely a local proposition. We believe in selling gas at one price, and we will sell it at any time they want it.

Mr. Roper—Being about to install a new power plant, I would like to use a gas engine. I would like to know what the general opinion would be in regard to gas supplied for engines as compared with electrical power. The electrical people certainly make a vast difference in their charges according to the amount of power you use. I have a contract for electrical power at so much, provided we use at least 2,000 kilowatts. And if we use less than 2,000 kilowatts the price is one thing, but if we use over that they make a different price. Why shouldn't gas be sold in the same way; that is what I would like to know? I am asking for information now.

The President—We would be glad to hear from some one in response to Mr. Roper's question.

Mr. Coombs—I believe in differential rates, based upon quantity and not upon the purpose for which the commodity is used. I think that would be the fairer way to put it.

Mr. McIlhenny being called on by the Chair, said—I think there is a growing use for gas in that way. Many gas companies have a sliding scale, giving additional inducements to consumers demanding greater quantities of gas, and those who established this custom feel very well satisfied thus far with the results. Some companies who gave more attention to the use of gas for industrial purposes, and have made radical progress along that line with fair success, endeavored to make extra inducements to use larger quantities of gas at lower prices.

Mr. Doherty being called on by the President, said—I do not believe that I agree with any of the speakers. My views are so different that I do not know whether it is worth while or not to exploit them. The electrical companies are rapidly coming to the belief that they should not give differential rates on quantity alone. It has been absolutely demonstrated that it is folly. The tendency is towards the adoption of some system of rating, based on the expenses occasioned by each consumer, and the expenses per unit of current sold are not necessarily proportional to the quantity used, but rather to the quantity used when considered in relation to the portion of the plant they use. In other words, there is not an electrical company that would not be better off if it could cut off about 30 to 50 per cent. of its present consumers. If they could, they would be ahead of the game. From 30 to 50 per cent. of their present consumers are probably unprofitable to them, and these consumers may be some of the largest they have. Take, for instance, a factory which runs all the year around, but closes down at half-past five. They only have occasion to use light 2 or possibly 3 months in the year; then they have only occasion to use light for from a one-half hour to an hour a day, which means that, for a 90 hours' use of certain equipment, the electrical company have to get enough out of that to pay their proportionate part of the interest on the investment, together with other fixed charges and operating expenses and station equipment. They will use perhaps $300 or $400 worth of current in those 2 or 3 months, and for the other 9 or 10 months of the year they use practically none. You will find in the electrical journals a great deal of literature on the subject of differential rates, and a great deal of this literature I think is applicable to the gas business. I have heard many views given by various gas managers on this subject. At our last convention we took up this subject and printed the views of the ex-President of the Michigan Gas Association, who held that differential rates were improper. I defended the other side, holding that differential rates while not equitable were more equitable than a uniform rate—that is, differentiating between the use of gas for lighting and for fuel. The load factor of a station selling gas only for lighting would be very low indeed. That is, they will have to have a plant that is capable of generating and distributing 10 times as much as their actual output would prove to be. This is because everybody uses light at approximately the same hour. Now, with fuel gas you get 3 peaks to your load. Sometimes your morning peak is a very long one; they cook their breakfast and do their baking, and the result is, for the same demand, you will sell more gas to fuel consumers than to lighting consumers. Therefore, if you had all fuel consumers on your lines your sales of gas would increase, or, rather, for the same sales of gas throughout the year you would not require as big a plant as you would for distributing gas for illuminating purposes only. Hence your expenses would not be as high and that would diminish your interest charges, taxes and many other fixed charges. For that reason I justify the lower rate for fuel gas, and I think I can demonstrate that this is so by some data in the question box. If anybody who has the question box here will turn to page 85, he will there find a chart showing the different load curves of gas consumption at the Denver station. Now the fuel curve I take it is number 3, which is the combined load curve of a large number of fuel users made up from the complaint meter records, and the biggest peak per consumer on fuel consum ption is 9 feet, whereas for lighting consumption the peak runs up to about 13 feet per consumer. It must be axiomatic that the nearer we can work our plant to its maximum capacity continuously, the less will be our fixed charges per unit of output. That makes a very great difierence, which we may not realize until we stop and study it out, as to how much of the expense of a gas company is in the nature of fixed charge, not dependent upon output. All of these fixed charges will be decreased proportionately with the larger output we have to divide into them. This rate question I do not believe is one on which a man can give an off-hand opinion. I think he must start in and analyze the results obtained from his present consumers, then I think he must analyze his expenses, and he must be able to determine what expenses would be increased by additional consumption to the same consumers and what expenses would be increased by additional consumption to additional consumers. Assume that the cost of reading meters and taking care of a consumer's account is about $3.60 a year—that is about what it is in Denver. Now, take a consumer who uses 6,000 feet of gas per year, and that we are selling gas at $1 per 1,000. We must first deduct from the $6, $3.60 for reading his meter and taking care of his account, which leaves us $2.40 for the manufacture of gas, its distribution and all other expenses, or 40 cents per 1,000 cubic feet. If you can sell to a man who uses 6,000 feet of gas at $3.60, plus 40 cents per 1,000, why can't you afford to sell to the big user at that same price? That is virtually what you are doing. You are only getting about 40 cents per 1,000 to cover a large proportion of your expenses. There are certain expenses of a gas company which bear no more relation to the output or sales than they bear to the rivets in your gasholder. I think the factors upon which we must base our expenses are those expenses which are exactly in proportion to the output, those expenses which are exactly proportional to every consumer, reading meters, making out bills, and so forth; those expenses which are dependent upon the distance which the consumer is from the station, which embrace investment, constituting the distributing system of the plant and so forth, and those expenses which are influenced by maximum demand. The size of our mains is not influenced by the amount of gas we sell but by the maximum, instantaneous demand which is made upon them. I think in the next 3 or 4 years there will be a very radical departure from our present method of selling gas. I cannot imagine a more inequitable way to sell gas than to sell it per 1,000 feet regardless of other conditions or other expenses. Cases can sometimes be best illustrated, by example. Now, at what rate could you afford to sell gas to a hotel to use under its boilers in case of emergency, or in case there was a shortage of coal? You must remember that we are in a little different position from the average merchant, or man who furnishes a commodity. He furnishes what he is able to furnish and no more. The supply of gas to the consumer is not within our power, but in his power. He can use as much or as little, clear to the capacity of his service and his meter, and we have always interpreted it to be our duty to enlarge that service and meter to meet any maximum demand he may choose

to put on us. There surely must be some limit to which we can afford to go and beyond which we cannot afford to go, and I think that limit is already exceeded in many cases.

Mr. Roper—I would like to ask the point blank question, giving the figures in a way. If in running a plant I would use 60-horse power 10 hours' a day and for 2 hours of that time, in this foundry I am figuring on, after you turned on the wind you would increase that power 30-horse power at, we will say, 3½ cents per kilowatt, what could you afford to pay for gas under those conditions.

The President—I will call on Mr. Doherty to answer Mr. Roper's question.

Mr. Doherty—You assume a per kilowatt hour charge of about 3 cents?

Mr. Roper—Yes; you may take it at 3 cents.

Mr. Doherty—In trying to compare the cost of gas and electricity one factor that has to be taken into consideration is the relative efficiency curve of a gas engine and motor, which prevents us from making very accurate figures. The friction load and the constant loss in the electric motor are very small. Therefore, the efficiency curve, if you can follow this imaginary line, runs something like that (indicating); with the gas engine curve it comes in here with the 25 per cent. friction load, then curves over this way to 100 per cent., and any place below 100 per cent. the electric motor is comparatively more efficient than the gas engine. While you may figure a consumption of 20 feet per hour in the gas engine at full load the consumption per horse power per hour increases enormously with less capacity, and as a gas engine is generally rated on its maximum capacity, while an electric motor is rated on its most economical capacity, you may generally run your electric motor so that it operates at the top of your efficiency curve while with your gas engine you must necessarily average below that efficiency curve, so that the only way to get at very accurate results is to make up the load curve of your plant on very small periods of time, possibly 5 minutes; and I do not believe I would use over 15 minutes. Taking the full load efficiency of the gas engine at 20 cubic feet per hour, with gas at $1 per 1,000, would give you a cost for fuel of 2 cents per brake horse power, which would be equivalent to one-third more than that, or about 2.66 cents per kilowatt hour. So that with gas at $1 per 1,000 it would compare favorably with electrical current at 3 cents per kilowatt, if you could work your engine all the time at full load. If you can buy your gas at 50 cents per 1,000, your gas for fuel, as soon as you get where your engine carries a full load, would be 1 cent per brake horse power, or 1½ cents per kilowatt hour. The maintenance charge on the gas engine is apt to be very much higher than on an electrical motor, but your maintenance and interest charges will figure out on a per horse power basis very high on short hour use and very low on long hour use. For instance, in making some figures for another member of this Association, taking the cost of a gas engine at $40 per horse power, the cost per horse power hour becomes something like 5 cents, if the engine is used only a few hours a day, while it comes down to about .44 of a cent, if the engine is used 10 hours a day. The cost of your electric motor in good sized units would be about $15 per horse power, we will say, while your gas engine would probably be from $40 to $60 per horse power, so that for very short hour use an electric motor is very much cheaper than a gas engine. There is some place where the line crosses, and below enough is saved in operating expenses of a gas engine to make it more economical than an electric motor.

Mr. Roper—What I was trying to get at was in using a 60-horse power motor 10 hours a day, and then using 2 hours of that day, when the wind is on, and you take off a melt—suppose that for 2 hours you must add at least 25 to 35-horse power more, and suppose that is used every day for only 2 hours. Now the question I was asking is how much is that going to increase the expense?

Mr. Doherty—If you have a load of that character you want to divide up your load so that you get the extra load thrown on another engine of 25 or 30-horse power, because it would be uneconomical to carry that extra 25 or 30-horse power in your main engine that would run 10 hours a day. I would say roughly that you would have to get your gas at about 65 cents per 1,000 to give an equivalent cost of 3 cents per kilowatt hour for electricity.

Mr. Roper—That would make up for the additional engine which would only be used for a few hours a day?

Mr. Doherty—If the electeical company are such fools as to carry that extra load for you at that rate I certainly would allow them to carry it.

Mr. Roper—I wasn't giving that away. I am not smart enough to make figures, but some friends have made some figures for me. (Laughter.)

Mr. Doherty—If they are foolish enough to put their plant at your convenience and charge you on a per kilowatt hour basis, at that rate I certainly would advise you to let them do it.

Transportation.

The President—I am very glad to be able to announce that, through the courtesy of the General Passenger Agent of the C., H. & D., the certificate plan for the transportation of members will be carried out by C., H. & D., Pennsylvania, B. & O. and Big Four Railway Companies, provided your certificates are properly countersigned by the Secretary and presented at the city ticket office to-day. (Applause.)

During a discussion which was then had as to the advisability of seeking reduced transportation rates by means of the certificate plan, it was urged by many of the members present that in the future those members of the Association who travel by means of mileage books should give the members who do not have mileage books the benefit of the advantages of the certificate plan, by purchasing tickets under that plan, rather than by using mileage, the price of transportation being the same in both instances.

Mr. Stone then moved that the Association express itself by a rising vote on the subject of whether the Executive Committee next year shall make an effort to secure the Central Passenger Association rate by means of the certificate plan and if the committee does secure it, that the members pledge themselves to use the certificate plan rather than to use mileage. (Adopted.)

Report of Committee on Next Place of Meeting.

The President—The next business before the Association is the Report of the Committee on Next Place of Meeting.

Mr. Whysall—Mr. President, it looks very much as though you have made a poor selection of a committee on next place of meeting. We have been unable to agree on a place, and your committee on next place of meeting, being unable to agree as to the place for the next annual meeting, suggest the following cities: Toledo, O., Evansville, Ind., and Cleveland, O., with the recommendation that the Association by a vote determine the next place of meeting.

(Signed), Geo. Whysall, J. G. Stephens, F. W. Stone, } Committee.

The President—A motion for the selection of one of these three places will now be in order.

Mr. Whysall then extended a cordial invitation for the Association to meet next year at Evansville, Ind., and Mr. Persons extended an earnest invitation to the Association to meet at Toledo, O.

On motion, by rising vote, the Association voted in favor of Cleveland, O.

Mr. Persons moved a reconsideration of the vote on next place of meeting, which motion was duly seconded and carried. The Association by a rising vote again decided in favor of Cleveland, O., as the next place of meeting.

Mr. Doherty—Mr. Chairman, if I may I would like to have permission to present another subject before the election of officers is considered, and that is in regard to research work. I will simply ask for the adoption of the report and the matter may be left in the hands of the incoming President or executive committee, because there are one or two members who wanted to be heard on this subject, one of whom is out of the city. Mr. Doherty then submitted the following

Memorandum Regarding Research Work.

The matter of research work has been given some attention by the American Gas Light Association, but this field is so large that were all of the Associations to undertake means for carrying out work in this line, they could not even cover a small portion of the field. None of our Gas Associations are so small but that they should endeavor to contribute their share towards original work of value to the gas fraternity.

The Ohio Gas Light Association took an important step at its last convention when it appointed a committee to devise specifications for standard methods for testing fuel gas appliances. Should this committee evolve some merhods for testing that will reflect the true efficiency of all of our various gas appliances, it cannot but result in an improvement in the manufacture of these appliances, which will have a beneficial effect upon the gas business. It is not euough to know that one water heater or one gas stove is as good as some other water heater or some other gas stove, but we want to know what percentage of the ideal efficiency is realized. We do not want to stop here. We want to know what occasions the losses; we want to know the exact division of these losses between radiation, the effect of over-ventilation, and other causes which produce these losses, as this is the only way we can expect to lessen them.

Were there no other field than work on gas appliances, that alone would warrant this Association in attempting to carry on research work, but there are other fields of importance besides this one. Many of the problems which confront us in the gas business are imperfeetly understood. Some of the formulas which we use are questionable. For years we have accepted the theory that specific heats were practically constant for all temperatures, but in the light of recent experience it seems likely that the specific heats of CO_2 and certain other gases may vary 100 per cent. from the minimum with a sufficient increase in temperature.

It would be impossible to go through the entire list of subjects requiring investigation. In my attempt to edit your Question Box for this convention I have had my attention directed to many points on which investigation work could be done to the great advantage of the gas fraternity. Take Question No. 3, which is apparently a very simple one: "Assuming that some coal must be stored to insure a supply at the works, is it better to leave the same coal stored all the time for any emergency that might arise, and use fresh coal as far as possible, or is it better to use the oldest coal, and should the old coal be cleaned out once a year?" Nearly every answer received to this question is to the effect that the old coal should be cleaned out periodically, or else the oldest coal should be used first. My own belief has always been that the freshest coal should always be used first, and stored coal should not be used except in emergency. I had always supposed this was the general belief amongst gas engineers until the answers to this question commenced to come in. I then found that I was in discord with every other gas manager that contributed answers to this question.

Time does not permit me to make an extensive investigation, but from the report of the results of some accurate experiments and the estimates of two fuel engineers the freshest coal should always be used first, and if coal is stored this coal should only be used under necessity. Coal deteriorates much more rapidly at first than later on, and after a certain period of time depreciation is so slow as to be almost unnoticeable. I am speaking now of a coal similar to Second Pool Youghiogheny, but I recognize that every coal has its own characteristics. If my assumption is right, a lesser total loss will result from allowing stored coal to remain stored as long as possible, but I do not know that my present belief is a correct one, and I simply mention this as another example to show the opportunities and necessity for investigation work which will prove valuable to the gas fraternity.

No one man or no one set of men can do much work. If this Association is to take up investigation work, it should endeavor to find means to enlist the services of the largest possible number of investigators. It would also be desirable to enlist the services of investigators outside of the gas fraternity in addition to all those who are in the gas fraternity, if this can be done.

It might be difficult to secure such research work unless there were some reward or means of proper recognition. The natural thing for an Association with funds to do would be to award gold medals for valuable work. The funds of this Association would not permit it to adopt this custom. Even if the funds would permit, I doubt if a gold medal would be any more prized by a recipient than would some proper certificate of appreciation which could be put in more available form for exhibition. I lean to the belief that an engraved certificate should be adopted.

I, therefore, recommend that the Association elect a Committee on Research Work; that this committee shall hold office, subject to removal by the vote of the Association, for a period of two years; that their successors shall be elected a year prior to the expiration of their term. I further recommend that this committee, when elected, shall be authorized by this Association to secure funds by voluntary subscription to provide an engraved plate for the certificate of appreciation, and that they shall be authorized, upon the collection of such a fund, to provide such a plate; also, that they shall be authorized to select certain subjects for investigation, and shall have power to predetermine the maximum and minimum points of credit that shall be given to any detail of investigation or research work, and upon completion of this work they shall recommend to the Association, subject to its action, the authorization of a specified number of accredited points.

The number of points required to obtain a certificate shall be 100. The maximum number of 100 points may be offered for any great undertaking in research or investigation work, or for any one detail of investigation or research work, provided the report furnished is of sufficient merit. For work of lesser importance any number of points may be given from 1 to 100, and when the investigator shall have obtained an aggregate of 100 points a certificate of appreciation shall be issued to him.

I, therefore, move that this Association create a standing committee on research work; that the members of said committee be elected for a term of 2 years; that their successors shall be chosen 1 year prior to the expiration of their term; that this committee be authorized to collect funds by voluntary subscription, to provide a suitable plate from which the certificates of appreciation may be made; that they be authorized to offer any number of accredited points for any detail of research or investigation work, subject to the approval of this Association; that such research or investigation work may be undertaken by anyone, whether a member of this Association or not; and that the names of holders of certificates of appreciation be published with every list of Association members.

On motion, the report of the Committee on Research Work was adopted.

Report of Committee on Nominations.

The Committee on Nomination of Officers submitted the following report:

Your Committee on Nomination of Officers for the ensuing year recommend the following:

President—Mr. J. D. McIlhenny, Philadelphia, Pa.
Vice-President—Mr. F. W. Stone, Ashtabula, O.
Secretary and Treasurer—Mr. T. C. Jones, Delaware, O.
Member of Executive Committee—Mr. J. D. Shattuck, Darby, Pa.

On motion the report of the committee was unanimously adopted.

The President—It gives me great pleasure to state that Mr. John D. McIlhenny has been elected President of this Association for the ensuing year; that Mr. F. W. Stone has been elected Vice-President; and that Mr. T. C. Jones has been elected Secretary and Treasurer. I am sure we will all be glad to hear from Mr. McIlhenny, and I will appoint Mr. Persons to escort him to the Chair.

Some Responses.

Mr. J. D. McIlhenny having been escorted to the President's Chair spoke as follows:

Mr. Chairman and gentlemen—It certainly is a very great compliment and honor to have been elected President of the Ohio Gas Light Association, and I assure you I deeply feel it. Such instances make us realize the bright spots in our lives. We should value and cherish any manifestation of esteem or confidence on the part of our fellow men. I have always taken a very great interest in the Ohio Gas Light Association. This is the 10th consecutive meeting I have attended, and I have always attended the sessions of the Association with a great deal of pleasure as well as with a great deal of profit. We have seen evidence in previous meetings and we see additional evidence at this meeting that this Association is endeavoring to do what it can for the betterment and improvement of the profession with which we are connected, and which we like so well. I look forward to the next year and the succeeding years of this Association with great pride and with great hope and anticipation. I believe we will make our mark in noting the progress which our profession and business merit. I believe that this Association will do what no other Gas Association has ever done, and in order to accomplish it the entire and earnest cooperation of all its members is necessary. I thank you all very much for the honor you have conferred upon me. (Applause.)

Mr. T. C. Jones was then called on by the President and said: Gentlemen, I have only to thank you again for this renewal of your confidence and hope during the year to come you will all remember that we are going to have a meeting in Cleveland next year, and that we must all do everything we can to make the 20th annual meeting of the Ohio Gas Light Association the most brilliant gathering of gas men ever held in this country. I thank you. (Applause.)

Votes of Thanks.

Mr. Doherty—Mr. President, before adjourning I move that a vote of thanks be extended to the Cincinnati Gas and Electric Company, to the Stacey Manufacturing Company, to the United States Cast Iron Pipe and Foundry Company, to the Hamilton-Otto Coke Oven Company and to F. and L. Kahn & Bros., who have made our stay in Cincinnati so pleasant, and to whom we are indebted for courtesies shown to us while here. I also move that a vote of thanks be tendered to President Andrews for his very painstaking work as the presiding officer at this meeting, and his uniform courtesy to the members of this Association; also, a vote of thanks to Secretary Jones for his earnest efforts in bringing about and carrying through to completion a very successful meeting. [Unanimously adopted.]

On motion, the 19th annual meeting of the Ohio Gas Light Association was then declared adjourned *sine die*.

[Prepared for the Journal, by Mr. Frederic Egner.]

A Review of the Eighteenth Annual Report of the Massachusetts Board of Gas and Electric Light Commissioners.—N o

During the year ending December 31st, 1902, 42,688 meters were tested, the fees ranging from 25 cents each, for 2 and 5-light meters, 30 cents for 10 and 60-light meters, 50 cents for 80 to 100-light meters, and then to $2.50 for the sizes up to and including 500-light meters, the sum total received for fees on that account being $10,945.10. Of the whole lot of meters tested only 996 were so called "complaint" meters, the rest being either new or recently repaired ones.

Forty-six pages of the Report deal with purely administrative duties of the Commissioners, among which are the supervision of bond issues desired to be made by companies under their authority.

"Twenty-nine applications for approval of issues of new stock or

bonds have been decided during the year. The amount of securities asked for was $5,119,700; the amount approved, $4,144,200. In 15 cases the full amount asked for was approved, and no petition was dismissed." That tells the story of the care and interest taken by the Board, which consists of Messrs. Forrest E. Barker, Morris Schaff and Chas. H. Gifford, in the affairs entrusted to them by the people; evidently, both people and corporations have cause to be thankful. Here is another excerpt bearing upon the above statement—it will be found on page 35 of the document. "The proposition that a company is entitled to a fair profit involves a further proposition that its affairs are economically and judiciously managed. The management may, if if desires, choose between profits and a high operating account, but it cannot rightly choose to impose both upon the consumer." That is a worthy expression deserving the designation of a "A golden text." The occasion of its utterance was found in the petition by the mayor of one of the cities, "pursuant to the vote of the city council, for a reduction of the price of gas supplied by the * * * Gas Light Company."

The investigation made by the Commissioners disclosed a state of affairs given by them comprehensively, and caused the following recommendation: "That, on and after the 1st day of January next the net price charged for gas by the * * * Gas Light Company shall not exceed $1.50 per 1,000 feet." In a foot note it is mentioned that "this recommendation was accepted by the Company, and went into effect January 1, 1903." The petitions of companies, cities or their representatives, and in every commendable action thereon by the Board, are interesting chapters of examples in human ethics, wherein the companies did not always come out second best, as will be seen in the case of a large manufacturing concern, which sought to lay wires "merely to supply its own factories," and was backed up in this attempt upon the vested rights of the gas company by the selectmen of the town by two separate decrees. The first of these decrees was overruled, necessitating a second which closely confined the manufacturing company to its own premises, and then only was the decree sustained and the appeal of the gas company dismissed. Municipal ownership is extensively treated in the report. Having already given the net results of the "blessing" obtained at considerable expense by 17 of the Massachusetts towns, we will only now add that 67 others have taken action in that direction, with only the above 17 "progressive" communities in the affirmative. If the taxpayers of the other 50 towns want any cause to be thankful the next time the national anniversary of thanksgiving comes around they might have page 99 of the 18th Annual Report of the Board of Gas and Electric Light Commissioners of their Commonwealth publicly read, and then find abundant cause to congratulate themselves and be truly and devoutly thankful. The same page is also earnestly recommended to the Honorable the Boards of Aldermen and others in authority in the various boroughs of the city of New York. Others in many parts of the country hankering after municipal ownership might take the hint, too; it may do them good. It is especially recommended to the editorial notice of two of the great New York "Dailies" with evening, or "the-whole-24-hour" editions, whose recent efforts in the direction of public ownership are known to the writer to be certainly insincere though possibly not disinterested. It is a well known trick with many so-called newspapers that, when they run out of copy, or are badly in need of a sensation, the gas companies may always be relied upon to furnish a popular subject as a last resort.

There is a chapter devoted to "Accidents from Gas and Electricity." There were 63 fatal cases from gas, 16 of which were clear cases of suicide, and two from acetylene gas—ignorance. Of 116 other cases which were not fatal, some were attempts at suicide and the rest mostly caused by ignorance, in which the fool-killer, so well known among gas men, was prominently present. "There were 14 fatal accidents from electricity, and 11 non-fatal accidents." None of these, unlike those with gas, were "done on purpose."

On page 161 will be found an unreliable list of gas stoves used in the State. The word "unreliable" is used advisedly, because in the report the statement is made that, "Although the figures are taken from the annual returns, they are in many cases estimates necessarily (?) Those marked with a * include only stoves leased by the companies and do not include those owned by consumers." Consequently the writer regards the list of stoves given in the report as practically useless, and not worth quoting from.

If the Commissioners could add such a feature to their very valuable document as would be afforded by a reasonably correct statement of stoves for cooking and heating, also gas engines in use for all purposes, it would bring it higher up as an ideal instrument, rendering it still more valuable. That such a thing is practicable may be learned from the experiences of our German colleagues, who frequently report not only all gas appliances used other than for lighting purposes, but even the number of burners, not counted by the misleading "meter lights" which the Commissioners were obliged no doubt to use for want of more reliable information.

Having recited nearly the "whole alphabet" in their annual returns to the Commissioners, the gas company officials would find that it would help them not a little if they would go just a bit further and give a reliable report in the direction indicated. Everybody may not see the utility of doing such a thing; but it would soon become self-evident.

The sizes of mains and meters used are given, besides many other details in manufacturing data, which will pay students of the gas industry to go over carefully and to digest critically as good practice, if nothing else. Fifty-nine pages are devoted to electric lighting statistics, and what has been said on account of the gas information in the report applies with equal force to the electrical information, which is well put together and exceedingly interesting. But as electricity has ceased to be of the, it may be said, once "dreaded" interest to gas men, the reader desiring further information on these details is respectfully asked to consult the report for himself.

A couple of "Balance Sheets, Manufacturing and Profit and Loss Accounts, to June 30th, 1902 (from the returns made as corrected by the Board)" showing the operations of two companies, one a gas the other an electric lighting company occupying the same district, will be given as samples as well as furnishing interesting information. The names of these companies will be omitted as was done before.

THE ELECTRIC LIGHT COMPANY.

Assets

Real estate	$166,203.46
Steam plant	191,529.94
Electric plant	72,478.06
Electric lines	159,303.59
Transformers	30,063.89
Meters	23,651.07
Arc lamps	15,294.95
Due for light and power	22,683.76
Fuel on hand	7,437.23
Carbons on hand	1,353.69
Incandescent lamps on hand	1,500.00
Globes on hand	75.14
Other material on hand	2,903.35
Horses, wagons, etc	1,000.00
Sundry accounts due the company	1,635.05
Office furniture	848.58
Cash on hand	12,589.93
Total assets as per books of company	$710,551.89

Liabilities.

Capital stock	$500,000.00
Notes payable	163,000.00
Unpaid bills	34,720.19
Deposits	971.09
Interest accrued but not due	1,173.43
Total liabilities as per books of company	$699,864.71
Profit and loss balance	10,687.18
	$710,551.89

Manufacturing Account.

Operating expenses:		Dr.	Cr.
At station	$62,928.56		
For distribution	34,841.40		
" management	8,554.19		
" taxes and incidentals	$14,650.82	$120,974.97	
Income from sale of light and power			$178,072.51
Balance to profit and loss		57,097.54	
		$178,072.51	$178,072.51

Profit and Loss Account.

	Dr.	Cr.
Balance June 30, 1901		$12,517.98
Balance of manufacturing account		57,097.54
Interest paid	$4,828.34	
Dividends declared	28,500.00	
Depreciation fund	25,000.00	
Other items	600.00	
Balance June 13, 1902	10,687.18	
	$69,615 52	$69,615.52

THE GAS LIGHT COMPANY.

Assets.

Real estate	$169,459.64
Machinery and manufacturing appliances	428,328.03
Street mains	428,087.53
Meters	57,309.03
Due for gas	26,461.94
Gas coal on hand	4,095.24
Coke on hand	161.25

Enrichers on hand	$1,302.60
Purifying materials on hand	350.00
Other materials on hand	25,876.92
Stoves on hand	2,840.11
Sundry accounts due the company	3,832.97
Cash on hand	38,167.56
Notes receivable	324.49
Works' improvement	12,294.61
Total assets, as per books of the company	$1,198,891 92

Liabilities.

Capital stock	$700,000.00
Notes payable	55,000.00
Unpaid bills	1,213.90
Deposits	7,091.60
Unpaid dividends	65.00
Amounts due from company, not included above	47,250.00
	$810,620.50
Profit and loss balance	388,271.42
	$1,198,891.92

Manufacturing Account.

Operating expenses:		Dr.	Cr.
At works	$78,277.40		
For distribution	34,014.01		
" management	20,982.43		
" taxes and incidentals	27,659.96	$261,833.80	
Income from sale of gas			$329,886.93
" " residuals			46,891.06
" " other sources			497.00
Balance to profit and loss		115,441.19	
		$377,274.99	$377,274.99

Profit and Loss Account.

	Dr.	Cr.
Balance June 30, 1901		$371,458.17
Balance on manufacturing account		115,441.19
Rents		568.52
Interest paid	$4,537.20	
Dividends declared	70,000.00	
Depreciation	22,500.00	
Jobbing account	1,574.64	
Other items	584.62	
Balance June 30, 1902	388,271.42	
	$487,467.88	$487,467.88

The report contains 166 pages of statistics like the preceding samples, viz., balance sheets of gas and electric companies. The population of the district in which the above two companies operate is given as 91,886. Its manufacturing interests are limited, far more so than perhaps any other city in the State. It is mostly a residence or home suburb of a larger city, and, as the writer can say from personal inspection, a very pleasant one at that. That there are "more ways than one to kill a cat," even in the well-governed State of Massachusetts, is illustrated by "Appendix C.—in the matter of the New England Gas and Coke Company. Opinion of the Attorney General" (Hosea M. Knowlton). He, among other things, gives a very clever definition as to what constitutes "public service corporations" with special bearing upon gas companies. One of the somewhat striking exhibits in the Appendices is the copy of "An Act to Authorize the American Woolen Company, of New Jersey, to Erect and Maintain Poles and Wires and to Furnish Electric Light and Power in the town of Maynard." Of course, that's all right, too; but it does seem odd that a "Woolen Company," and of New Jersey at that, should go into the electric lighting business in the State of Massachusetts. In conclusion, let me say once more that it is hardly possible that any review whatever could do full justice to this very interesting and almost perfect treatise on the gas and electric lighting business, even though its facts are somewhat circumscribed by conditions not prevailing elsewhere than in New England. Though it comes in a modest paper cover it is as valuable as a text book as not a few other and more pretentious works.

The real, earnest student will find much between its covers to interest, and if he knows how to use the information given, to help him in his work. How much real good such a Commission as that of Massachusetts might do in some other directions, let me illustrate by just one example. There is a small city within a radius of less than 1,000 miles from New York, in which there is a well appointed works having modern apparatus of almost every description. The superintendent, still a young man, has for all that had over 20 years' experience in every branch of the gas business, and may safely be described as thoroughly competent, yet not efficient. He is temperate in his habits and not lazy; but, having no one of sufficient gas knowledge over him, and being highly appreciated as indeed he deserves to be in a general way, yet he is while a most economical manager almost too close in some ways, directly the cause of some thousands of dollars annual loss to his company and of almost incalculable loss to its customers. Well; how can that be? By trying to save the one-tenth of 1 per cent. in purification he will frequently allow the gas to go out to his patrons so heavily loaded with sulphur that the air where gas is burning is distinctly charged with a dangerous amount of sulphuric or sulphurous acid, and instead of removing the most of the ammonia, for which the best possible machinery is under his command, that dangerous gas, dangerous to his company's meters and consumers' fittings, goes along, and while in part neutralizing the sulphur nuisance perhaps, meters are affected very seriously by the same means. Now, if there were a State gas commission like the one whose work we have reviewed, the saving in that small town alone would far more than pay the expense. And, as we sometimes say, this is not a lone case, for "There are others." More could be said in the same line, but the reader is by this time probably heartily tired of this "Review," though not more so than the writer who thoughtlessly made a rash promise when undertaking the job, and who is well pleased to think he may now close this paper, with the kind approval of the reader.

Changes in the Gas Supply of Lynchburg, Va.

By "H."

The historical old gas works, built about 1852, and long situated under the bluffs that line the James river, above the water works station in the city of Lynchburg, are slated to go, the exigencies of commerce and the improvements in the art of gas manufacture having worked out to this end. It is well known that the Southern Railway, the tracks of which adjoin the works, has been most crowded for room and requires more freight yard trackage to relieve congestion. The Gas Company also, while having a fair works, it having been modernized since the present owners of the Lynchburg Traction and Light Company acquired it, has nevertheless been desirous of securing a much more efficient plant than was possible at that site. These conditions have resulted in a sale to the Southern Railway of the property bodily, and the determination to construct immediately by the Gas Company in a new location a plant that would be greatly superior to the present one, and second to none of its size in the State or in this section. A contract has been closed with the Southern Railway under which the gas works will be vacated the latter part of this year, and a contract purchase has been made by which the Gas Company acquires about 3 acres of land, at the upper end of Blackwater avenue, near the Rivermont viaduct, and generally speaking lying beneath it. This is a favoroble location, owing to its proximity to the new railroad, to the steam station of the electric department and the new car barns that will shortly be built at the outer end of the viaduct, opposite the present Rivermont car barns.

Plans and specifications are being prepared by Mr. F. H. Shelton, the Company's Secretary and Treasurer and Engineer for the gas department, for the immediate construction of a gas works on the above site that will have a capacity 50 per cent. greater than the present works, to take care of the steadily increasing demand for gas for use in stoves and gas fuel appliances, and that will permit of further extensions in years to come.

The most notable change in character of the plant will be the virtual abandonment of the old processes that characterized the manufacture of gas, and the adoption of apparatus on modern lines that will both simplify and quicken the process of manufacture, and at the same time eliminate the objections in the way of smoke, etc., that have attached to the old system. It is expected to use inclined retorts, with every modern accompaniment thereto.

The management of the Traction Company has always been characterized by a desire for neatness and cleanliness, as has already been evidenced in many ways, and this feature has been especially aimed for in the new plant. For instance, it is proposed to do away entirely with the engines (and steam and boiler capacity required for driving them) heretofore used for operating the exhausters, blowers, coal conveyors, etc., it being the intention to operate these parts in the new works entirely by electric motors, using the Company's current from the new electric station at Reusens.

It will, in brief, and almost literally, be *a stackless gas works*, not only a novelty in the design of gas plants, but a credit to the engineering ability of the management and the perfection that the art of gas making has attained.

It is further expected to instal a modern system of water gas manufacture. This will make the plant a double-header system, so-to-speak, so that possible interruption to supply will be reduced to a minimum. The increased amount of gas used for cooking, heating and similar purposes, often in the case of invalids, children, etc., made the management feel that every precaution should be taken to insure the supply of gas that is often depended upon, even if it meant considerable further investment and construction expense in the new plant. It is expected to handle all the coke and coal by mechanical conveyors, avoiding the shoveling and carting heretofore involved, and the gas maker's task will certainly be a far easier one than heretofore.

Mr. Apperson further, always desirous of having his men as comfortably fixed or situated as reasonably possible and as conditions will permit, has especially stipulated that the new works shall have specific accommodations for the gas works employees; and to that end the plans include a room that will be equipped with modern lockers, baths, showers, cooking conveniences for coffee and men's meals and other features that will add to their comfort while on duty. While some of the machinery of the present works is of a character that will permit of being removed and used in the new, the great bulk of the succeeding plant will be entirely new apparatus with the necessary buildings, etc. The construction of these buildings, the foundation, the grading and the new connecting pipes down Blackwater street and at Rivermont avenue, to tie into the existing mains, will involve the expenditure of a considerable amount of money locally to the advantage of our city contractors. The general tone of the new works it is expected to have exceedingly attractive. There will be an ornamental gateway and drive entrance from Blackwater street. A large part of the property will be laid out in grass and appropriate flower beds. The whole will be inclosed by a

suitable and attractive fence. Certain of the rooms will be laid with tile floor and wainscoting, for cleanliness, durability and attractiveness.

The station meter room will be somewhat ornate, and the general appearance of the buildings will be that of solidity, dignity and neatness. It is believed that the whole station will be a model plant of its size and will enable Lynchburg to say that it has a better plant of its kind than any other city of the State.

The expenditures involved will approximate $100,000, and active work will begin just as soon as the engineer's plans are received and contracts can be placed.

Coal Tar Pavements in Northern New England.[1]

In the summer of 1901 a coal tar pavement was laid on Main street, Hanover, N. H., which was to some extent experimental. During the past summer another section of this pavement was constructed, contiguous to that previously laid, and although it is too soon to say very much in regard to the wearing qualities of this pavement, it presents several features which should be of considerable interest to municipal officers, especially in small towns where it is not possible to obtain asphalt pavement except at prohibitive prices.

The total thickness of the pavement is 9 inches, consisting of a 4-inch foundation course of concrete, a thin cushion coat of clean sand, a 2-inch course of tarred gravel not exceeding 1½ inches in greatest dimension, a 1-inch course of tarred pea gravel, and a 2-inch wearing surface composed of a special paving cement and clean, sharp sand. The concrete for the foundation course was composed of one part Rosendale cement, two parts sand, and four parts coarse gravel, with no stones larger than 2½ inches and very few less than ¼ inch in smallest dimension. The concrete was allowed to set for at least one week before the succeeding courses were laid. The bottom surface layer of gravel was coated with No. 4 coal tar paving cement, in about the proportions of 1 gallon of paving cement, to 1 cubic foot of gravel. This course was thoroughly rammed and rolled while in a hot, plastic condition. The 1-inch course of pea gravel above this was treated in a similar way.

The paving cement for the wearing surface was composed of 66⅔ per cent. of coal tar pitch, 11⅓ per cent. of Trinidad asphalt, and 22 per cent. of coal tar. It was mixed with the sand in the proportion of 120 gallons of paving cement to ¾ cubic yard of sand, and was put down so as to be 2 inches thick when compacted, the whole being again rolled while in a plastic condition. The specifications state that "the coal tar used shall conform to a standard satisfactory to the engineer in charge and be free from excess of sooty matter, naphthaline and creosote oils; the Trinidad asphalt shall be well refined and as far as possible freed from foreign organic and animal matter and volatile oil, and of a uniform standard of purity and specific gravity, containing not less than 60 per cent. of bituminous matter soluble in bisulphide of carbon."

The gutters on both sides of the street were paved with granite blocks for a width of 4 feet. This was done largely on account of the excessive wear coming on this part of the pavement due to the hitching of horses at the curb. These blocks were bedded in 6 inches of gravel, and the joints filled with gravel and coal tar.

The cross-section of the street is a parabola, with a rise of 8 inches from the gutter to the crown. The total width of the street is 60 feet and it has a grade of 2½ per cent. About 1,500 square yards of the pavement were constructed each year. The cost of the first section was $1.50 per square yard and of the second $1.85, the increase being due to a 66 per cent advance in the price of coal tar. The granite block gutters cost $2.50 per square yard.

Main street, as its name signifies, is the principal street of the town, and a great number of vehicles pass over it in a day, although there are comparatively few very heavy loads. It is too soon to say much as to how the pavement wears, but so far there has apparently been very little wear, and no cracks have appeared, as had been predicted by some. The pavement is not slippery.

The hardest wear comes on it just before it is covered with snow and after the horses have calks on their shoes. The engineer on whose specifications and under whose direction this pavement was constructed is Prof. John V. Hazen, of the Department of Engineering, Dartmouth College. He states that on the whole it gives good satisfaction, although a good many opposed its use at first. The worst objection to it seems to be that it dries off quickly and gets dusty easily, and on windy days clouds of dust sweep down through the street. The greater part of this, however, is carried by the dirt brought on to the pavement by the traffic from the adjacent unpaved streets. At first the pavement was cleaned by removing the droppings every morning, and sweeping it all over about once a week. This last year, owing to the frequent rains, it has only been necessary to clean off the droppings every morning, at a cost for the 3,000 yards of 35 cents a day for 6 days in a week.

In connection with the preceding information relating to the Hanover pavement, Prof. Hazen has also furnished much of the following data concerning similar pavements in other places in New Hampshire and Vermont. Practically the same kind of pavement has been used in Woodsville and Littleton, N. H., and in St. Johnsbury and Barre, Vt.

The Woodsville pavement, built by Mr. S. D. Tilton, who is the Engineer of Littleton, N. H., has been down 4 years, and shows thus far very little wear. The foundation consists of a 4-inch course of 1:2½:4 natural cement concrete. Upon this was put a cushion coat of 2 inches of sand, and above this 2 inches of gravel coated with tar and rolled. The next course was 2 inches of pea gravel tarred and rolled, and the wearing surface was 2 inches of coal tar concrete composed of 120 gallons of paving cement mixed with 1½ yards of sand. The paving cement was composed of 66⅔ per cent. of pitch, 11⅓ per cent. of asphalt, and 22 per cent. of coal tar. This pavement was laid on three different grades —3.2 per cent., 6.12 per cent., and 1.5 per cent. At first the steepest grade proved rather slippery, but after the horses got accustomed to it the pavement gave very little trouble in this direction. It cost about $1.50 per yard in 1898, with a total of 9,500 yards.

The St. Johnsbury and Littleton pavements were cheaper, costing only $1 per yard. The foundation in these cases was composed of cobblestones set by hand to a firm base something like a telford base, but not so closely set and without the spaces between the stones being packed with spawls. The pavement at Littleton consisted of first these cobblestones 5 inches thick, then 1½-inch gravel coated with coal tar, 2 inches thick, then 2 inches of ½-inch gravel coated with coal tar, and then the surface coat 2 inches thick of sand mixed with coal tar and pitch. In this case and in St. Johnsbury no asphalt was used.

The pavement at Littleton was put down in 1894, '95 and '96, in all about 14,000 square yards. Mr. S. D. Tilton, the engineer of that place, states that it has stood well during the 8 years of its use under a heavy traffic. Only a few places wore out so that it was necessary to renew the top layer. The 4 inches of concrete for the foundation of the Woodsville payment was used in order to bridge any small soft places there might be in the roadbed.

The pavement at St. Johnsbury, consisting of about 3,200 square yards, was built in 1892. In 1900 a new surface coat was put on at a cost of 60 cents per yard. There has been no further pavement of this kind laid in St. Johnsbury. Macadam is used quite extensively there. Mr. M. J. Russell is superintendent of streets.

In Barre, Vt., a pavement like that at Littleton was built in 1890. It was constructed under rather adverse conditions, and it has been subjected to pretty heavy traffic, and has not proved very satisfactory. The street where it is laid has the heaviest traffic in the city, both in number of teams and in weight of loads. It is no unusual sight to see 20 to 40 loads in a day varying from 4 to 12 tons each, and a 20 or even 40-ton load occasionally. These loads are mostly drawn on 4-wheeled trucks, with tires varying from 3 to 6 inches in width. The pavement was built without engineering inspection and with no specifications under a 5-year guarantee and at a cost of $1 per yard. The part of the contract price held back on the guarantee was all used up in repairs in 3 years. Since the guarantee expired $500 has been expended by the city in repairs, and most of the time the city has had a very poor road. Street Commissioner R. S. Currier states that little but the foundation now remains. This past season it was dressed over with gravel, and it is intended to repave with granite blocks.

1. *Engineering Record.*

ITEMS OF INTEREST FROM VARIOUS LOCALITIES.

A large number of the employees of the New Amsterdam (N. Y.) Gas Company, called on its late Manager, Mr. James Brackenridge, at his residence, 364 Madison street, Brooklyn, the evening of Saturday, May 2d, to present him with a loving cup as a testimonial of their friendship and esteem. The cup, which is a beautiful specimen of the silversmith's art, bears the inscription, "Affection's tribute to James Brackenridge, from the employees of the New Amsterdam Gas Company, April 30, 1903." Accompanying the cup was a handsomely illuminated letter, expressing the regret of the employees at the severed relations, and wishing a prosperous future for their former Manager. The latter is signed by a committee representing each department of the Company. Mr. Brackenridge retires from the New Amsterdam Company, after 12 years of service, to enable Mr. G. W. Doane, the newly elected General Manager, to inaugurate changes in the system and methods of conducting the business. Mr. Brackenridge takes with him the good will and respect of employers and employees.

In the reorganization of the Rochester (Minn.) Gas Company the capital stock has been placed at $50,000. The incorporators are Messrs. John H. Brown, B. W. Eaton and George W. Granger.

It is reported that the properties of the Seneca Falls and Waterloo (N. Y.) Gas Light Company have been purchased by the Interurban Gas Company, whose headquarters are at Geneva, N. Y.

The Brockton (Mass.) Gas Light Company has purchased a large plot of ground, adjoining the present works, on East Union and Grove streets. This purchase is preliminary to important plant extensions.

At the annual meeting of the shareholders in the Columbus (O.) Gas Company, the officers chosen were: Directors, George W. Sinks, J. O. Johnston, F. C. Hubbard, D. E. Putnam, C. D. Firestone, E. K. Stewart, John G. Deshler, C. J. Hardy and H. D. Turnay; President, George W. Sinks; Secretary-Treasurer, W. R. Powell; General Manager, J. O. Johnston. The matter of closing down the artificial gas plant was not settled.

Mr. J. W. McClung, of Pittsburg, Pa., has been appointed Receiver of the properties of the Irwin-Manor (Pa.) Fuel Gas and Light Company.

A NOTABLE purchase of additional real estate by the Bridgeton (N. J.) Gas Light Company would seem to point to marked changes in the Company's manufacturing system.

THE proprietors of the Girardville (Pa.) Gas Company have increased the selling rate in the sum of 25 cents per 1,000 cubic feet.

THE Gas Machinery Company, of Cleveland, O., will construct 2 duplex purifiers, 16 feet by 20 feet by 11 feet 6 inches deep, for the Mohawk Gas Company, of Schenectady, N. Y. The purifiers are to be complete, with crane for hoisting covers, oxide elevator, etc., and will be erected on beams and columns.

THE Denver (Col.) Gas and Electric Company has arranged for a prize competition, open to all the high school pupils of that city, for the best original essays put together on the subject of "The advantages of cooking with gas over other methods of cooking." The details of the contest are as follows:

Prizes.—For the best essay, $25 in cash; second best, $20; third, $15; fourth, $10; fifth, $5.

Conditions.—1. If less than 25 essays are submitted, but 4 prizes will be given, beginning with the second.

2. No essay must contain more than 1,000 words or less than 500 words.

3. No essay must be signed by the author's real name; but every essay must be signed by a *nom de plume*, accompanied by a sealed envelope containing real name and address and *nom de plume*.

4. Essays must be received, by mail or otherwise, at the office of the Manager of the Denver Gas and Electric Company, 405 Seventeenth street, prior to 6 P.M., May 16th.

5. A committee of three competent judges, none of whom will know the authorship of any of the essays, will immediately examine the essays and make the award of prizes, designating the authors by their *noms de plume*. They will then open the envelopes that accompanied the essays, ascertain therefrom the real names of the authors of the prize essays, and the prizes will immediately be paid over accordingly.

6. The offer is open for the acceptance of every pupil now regularly attending any of the high schools in Denver, but to no others.

THE Tozier Valve Manufacturing Company, to manufacture and sell valves for regulating and controlling the supply of gas, water, oil, etc., has been incorporated at Augusta, Me. The officers of the concern are: President, Chas. A. Marston; Treasurer, J. Wallace Hunt—both of Portland, Me.

AT a recent session of the Connecticut House of Representatives the Committee on Cities and Boroughs submitted an adverse report on the bill to establish a State board of gas and electric light commissioners. The report was adopted by the House without discussion.

MR. C. J. HAYES, Vice-President and General Manager of the Peoples Gas Company, of Shenandoah, Ia., informs us that we were in error in our statement in the JOURNAL for April 20th as to when gas would be turned on. Mr. Hayes says that gas will be turned on before the 15th inst.

ADVICES from Atlantic City, N. J., are to the effect that in the case of Robert King, administrator of the estate of Mary King, who died through inhaling illuminating gas some months ago in Atlantic City, against the Atlantic City Gas and Water Company, alleging that Mrs. King's death was due to a faultily installed gas range that had been placed by the Company, the jury rendered a verdict for plaintiff of $3,000. The case will be appealed.

THE annual meeting of the United Gas Improvement Company was held last Monday, in the Company's offices in Philadelphia, Mr. Samuel R. Shipley presiding. There was a very large attendance, and the affairs of the meeting were very harmonious. The only change in the Board of Directors was the naming of Mr. Randal Morgan in place of Mr. P. A. B. Widener. The officers chosen were: Directors, George Philler, Wm. L. Elkins, C. A. Griscom, Wm. W. Gibbs, Samuel T. Bodine, Thomas Dolan, and Randal Morgan; President, Thomas Dolan. The proposition to increase the capital stock in the sum of $8,475,000 was indorsed, and, on motion of Mr. Morgan, it was ordered that the new stock be issued at such times and for such purposes as the Directors saw fit to advise. The report of President Dolan, among other things, said: "The net profits of your Company for the year ending December 31, 1902, amounted to $3,473,643.74, an increase of $938,354.90 over the profits of the previous year, and from careful estimates, we believe the new capital asked for to-day can be as profitably employed as that now invested. All of this new capital, amounting to $8,475,000, is required for extending the plants and equipments of the various companies in which you are now interested. The growth of our business in all departments has been large, and promises to continue. During 1902 the gas companies in which we are interested sold 95,868 gas ranges and other appliances, and the sales of gas, which is our chief business, increased 22½ per cent. in volume over the sales of 1901. The business of the electric light and trolley companies in which we are interested increased 11 per cent. and 7½ per cent., respectively. We must grow with the cities whose inhabitants depend on us for light and fuel and transportation. This means expenditures for extensions and improvements. Should the election to be held to-day be favorable to an increase of the capital stock, following the policy of the Company since its inception, your President and Board of Directors recommend that this capital be raised by selling to the shareholders, in the proportion of 30 per cent. of their holdings of record at the close of business on May 9, 1903, 169,500 shares of new stock, at its par value of $50 per share. The right to subscribe will be evidenced by negotiable allotment certificates, exchangeable for subscription certificates at any time prior to June 15, 1903. Subscriptions will be payable in five instalments. The direct control and active management of the various Companies in which your Company is a shareholder are vested in their respective Boards of Directors, and each Company has a complete official organization of its own. But the Works' Committee of your Company passes favorably upon all property improvements and extensions, and contracts for supplies, before they are authorized. This committee meets every day, and is composed of President, Thomas Dolan; Second Vice-President and General Manager, Samuel T. Bodine; Third Vice-President and General Counsel, Randal Morgan; General Superintendent, Walton Clark; and Treasurer, Lewis Lillie. One member of this committee is an executive officer, and the Treasurer of the United Gas Improvement Company is Treasurer of each of the companies in which you are interested. We are, therefore, in constant and close touch with their management, without in any sense making our Company liable to the name of 'trust.' There can be no combination as to regulation of prices or volume of output between lighting companies operating in cities and towns scattered over the United States."

A CORRESPONDENT in St. Paul, Minn., says: "Judge Brill has filed a decision in the case of the St. Paul Gas Light Company to recover interest on lamps and posts placed by the Company and used by the city. The gist of the decision, which awards $10,542.58 to the Company, is as follows: The charter of the Company, laws of 1857, provides that the Company shall erect posts and establish lamps as directed by the city, and that the city shall pay the Company interest at the rate of 8 per cent. per annum on the cost of the posts and lamps. The city paid this interest without protest or question down to the year 1897, and then a controversy arose as to whether the city should or should not pay interest on the cost of posts out of service. The Company brought a suit against the city, and the Supreme Court, called upon to pass on the question, held that the city was not bound to pay interest on the cost of posts not in use. The city then took the ground that it was not to pay interest on any posts whatever, and the suit now decided by Judge Brill was brought by the Company to compel the payment of interest on posts in service. The court holds that the city must pay interest for the years 1899, 1900 and 1901. The city took the ground on the trial that the contract for lighting entered into each year covered all contingencies and liabilities, although it is provided in these contracts, on behalf of the Company, that nothing in the contracts shall be construed as waiving the right to the 8 per cent. interest, if the Company has any such right. The years 1897 and 1898, not included in the period for which the court directs judgment, are omitted because as to those years the city and the Company had a special understanding or arrangement. 'Every contract made between the plaintiff and the defendant from 1857 to 1897 contained an express affirmation on the part of the city of its obligation to pay to the Company interest on the original cost of posts, lamp meters, gas pipes and the cost of laying and directing the same, and interest was in fact paid during that period, save as otherwise expressly provided in certain of said contracts.' It is interesting to note that in 1857 there were 150 lamp posts and lamps, and in 1867, 157 lamps and posts. In the same year, 1867, a contract was made between the city and the Company, that for a period of 5 years the Company should light 100 lamps, and that number was lighted up to the year 1872. In the year 1898 there were 3,362 gas lamps, the highest number ever lighted. Then electric lighting came into use, and the number of gas lamps decreased until in 1901 there were 2,505 lighted. The original cost of the purchase and erection of 3,362 posts, lamps and service pipes was $85,539.53."

THE affairs of the Sunlight Gas Company, of Montreal, Can., are being wound up. The Company never got much beyond the formative stage.

THE Directors of the Ohio Fuel Gas Company have determined to increase the capital from $1,500,000 to $4,000,000.

THE AMERICAN GAS LIGHT JOURNAL

A. M. CALLENDER & CO.,
PROPRIETORS.

THOS. J. CUNNINGHAM,
ELBERT P. CALLENDER,
EDITORS.

CHAS. E. SANDERSON,
MANAGER.

PUBLISHED ON EACH MONDAY OF THE YEAR AT
No. 42 Pine Street, New York.
Telephone, 2996 John.

MONDAY, MAY 11, 1903.

The Market for Gas Securities.

The quotations for Consolidated gas show a loss of about 2 points for the week, the decline presumably being traceable to the action of the little Mayor of Greater New York in vetoing the Remson bill. The objections offered to the measure by the city's chief executive are of a nature to lead one to incline to the view that he knows nothing of its true import, which only permits the Company to a thrice legal right it already possesses of extending its mains from Ravenswood to Astoria. Our belief is that Governor Odell will sign the bill over the Mayor's objections. The Company has declared the regular quarterly dividend of 2 per cent. It is payable the 15th prox. City gas bonds of all sorts meet with ready sale.

Brooklyn Union is nominally weaker, but the stock is stagnant so far as actual transfers go. Peoples, of Chicago, is steady. Washington (D. C.) gas keeps on going to the 500 mark. The Essex and Hudson, of New Jersey, issues have scored a marked advance, and the same may be said of the American Light and Traction Company's securities. The general market favors the investor.

Gas Stocks.

Quotations by George W. Close, Broker and Dealer in Gas Stocks.

16 WALL STREET, NEW YORK CITY.

MAY 11.

☞All communications will receive particular attention.

☞The following quotations are based on the par value of $100 per share.

N. Y. City Companies.	*Capital.*	*Par.*	*Bid.*	*Asked.*
Consolidated	$73,177,000	100	209½	210
Central Union, Bonds, 5's.	3,000,000	1,000	109	111
Equitable Bonds, 6's	1,000,000	1,000	105	..
" 1st Con. 5's	2,300,000	1,000	118	120
Metropolitan Bonds	658,000	..	108	112
Mutual	3,500,000	100	310	325
Municipal Bonds	750,000	..	..	..
New Amsterdam Gas Co. ..				
Bonds, 5's	11,000,000	1,000	108⅛	109
Northern Union, Bonds, 5's.	1,250,000	1,000	104	107
New York and East River				
Bonds 1st 5's	3,500,000	1,000	112	113
" 1st Con. 5's	1,500,000	..	109	111
Standard	5,000,000	100	132½	140
Preferred	5,000,000	100	152	160
Bonds, 1st Mortgage, 5's	1,500,000	1,000	115½	118
Yonkers	299,650	500	130	..
Out-of-Town Companies.				
Brooklyn Union	15,000,000	100	210	220
" " Bonds (5's)	15 000,000	1,000	119	119½
Bay State	50,000,000	50	⅜	½
" Income Bonds	2,000,000	1,000	..	75
Binghamton Gas Works,..	450,000	100	28	30
" 1st Mtg. 5's	509,000	1,000	93	96
Boston United Gas Co.—				
1st Series S. F. Trust	7,000,000	1,000	82	85
2d " " "	3,000,000	1,000	47½	50
Buffalo City Gas Co.	5,500,000	100	7	10
" " Bonds, 5's	5,256,000	1,000	73	76
Capital, Sacramento	500,000	50	..	35
Bonds (6's)	150,000	1,000	..	..
Central, San Francisco	000,000	..	106	108
Chicago Gas Co. Guaranteed Gold Bonds	7,650,000	1,000	104	104¼
Cincinnati Gas & Elec. Co..	29,500,000	100	97½	98
Columbus (O.) Gas Co., 1st Mortgage Bonds	1,500,000	1,000	101	101½
Columbus (O.) Gas Lt. & Heating Co	1,682,750	100	88¾	89¼
Preferred	3,026,500	100	107½	109
Consumers, Jersey City Bonds	600,000	1,000	103	106
Consumers, Toronto	1,700,000	50	218	225
Consolidated, Baltimore...	11,000,000	100	70	70¼
Mortgage, 6's	3,600,000	..	..	118
Chesapeake, 1st 6's.	1,000,000	..	..	..
Equitable, 1st 6's.	910,000	..	..	..
Consolidated, 1st 5's	1,490 000	..	..	112
Consolidated Gas Co. of N.J.	1,000,000	100	15	17
" Con. Mtg. 5's	880,000	1,000	85	87
Consolidated G. & E. Co.'s. Little Falls, N.Y.	90,000	100	..	100
Bonds	75,000	..	..	100
Detroit City Gas Co.	4,825,500	50	..	89
" Prior Lien 5's	5,603,000	1,000	99½	100
Detroit Gas Co., 5's,	382,000	1,000	77	79
" Inc. 5's	16,000	100	98½	100
Equitable Gas & Fuel Co., Chicago, Bonds	2,000,000	1,000	..	101
Essex and Hudson Gas Co.	6,500,000	..	39	40
Fort Wayne	2,000,000	..	..	..
" Bonds	2,000,000	..	55	..
Grand Rapids Gas Lt. Co. 1st Mtg. 5's	1,225,000	1,000	104½	105
Hartford	750,000	25	245	265
Hudson County Gas Co., of New Jersey	10,500,000	..	25	..
" Bonds, 5's.	10,500,000	..	101	103
Indianapolis	2,000,000	..	80	85
" Bonds, 6's.	2,650,000	..	105	107
Jackson Gas Co.	250,000	50	73	75
" 1st Mtg. 5's.	290,000	1,000	101	102½
Kansas City Gas Light Co., of Missouri	5,000,000	100	..	86
Bonds, 1st 5's.	3,822,000	1,000	102	104
Laclede, St. Louis	10,000,000	100	97	..
Preferred	2,500,000	100	100	110
Bonds	10,000,000	1,000	109½	110
Lafayette Gas Co., Ind.	1,000,000	100		60
Bonds	1,000,000	1,000	60	65
Louisville	2,570,000	50	130	140
Madison Gas & Elec. Co. " 1st Mtg. 6's.	350,000	1,000	107½	108½
" 6 per cent. scrip, due 1910	100,000	25	85	87
Montreal, Canada	2,000,000	100	218	184¾
Nashville Gas Lt. Co.	1,000,000	100	110	..
Newark, N. J., Con. Gas Co	6,000,000	..	56	58
Bonds, 6's	4,600,000	..	105	105¾
New Haven	1,000,000	25	300	325
Oakland, Cal.	2,000,000	..	46	47
" Bonds	750,000	..	..	.
Peoples G. L. & Coke Co., of Chicago	25,000,000	100	104	104¼
Peoples Gas Lt. & Coke Co., Chicago, 1st Mortgage	20,100,000	1,000	..	..
2d "	2,500,000	1,000	104	
Rochester Gas & Elec. Co..	2,150,000	50	88	..
Preferred	2,150,000	50	118	..
Consolidated 5's	2,000,000	..	87½	90
San Francisco, Cal.	10,000,000	100	51½	52
St. Joseph Gas Co. " 1st Mtg. 5's	751,000	1,000	95	96½
St. Paul Gas Light Co.	1,500,000	100	45	47
1st Mortgage 6's.	650,000	1,000	113	116
Extension, 6's	600,000	1,000	112½	115
General Mortgage, 5's..	2,465,000	1,000	92	93
Syracuse, N. Y.	1,975,000	100	42	45
Bonds	2,047,000	1,000	98½	99½
Washington, D. C	2,600,000	20	470	472½
First mortgage 6's.	600,000	..	..	..
Western, Milwaukee. Bonds, 5's	4,000,000	..	109½	110
Wilmington, Del.	600,000	50	232	..

Advertisers' Index.

GAS ENGINEERS. Page

A. E. Boardman, Brevard, N. C. 752
Baxter & Young, Detroit, Mich. 752
David Leavitt Hough, New York City. 752
Economical Gas Apparatus Construct'n Co., Toronto, Ont. 744
Frank D. Moses, Trenton, N. J. 739
Fred. Bredel Co., Milwaukee, Wis. 740
Geo. R. Rowland, New York City. 742
Humphreys & Glasgow, New York City. 753
Kerr Murray Mfg. Co., Fort Wayne, Ind. 752
The Gas Machinery Co., Cleveland, O. 739
The Jeffrey Manufacturing Co., Columbus, O. 749
The Western Gas Construction Co., Fort Wayne, Ind. 720
United Gas Improvement Co., Philadelphia, Pa. 737
Wm. Henry White, New York City. 755

GAS WORKS APPARATUS AND CONSTRUCTION.

A. E. Boardman, Brevard, N. C. 752
Bartlett, Hayward & Co., Baltimore, Md. 753
Baxter & Young, Detroit, Mich. 752
Christopher Cunningham, Brooklyn, N.Y. 740
Connelly Iron Sponge and Governor Co., New York City 704
Continental Iron Works, Brooklyn, N. Y. 754
Davis and Farnum Mfg. Co., Waltham, Mass. 732
Delly & Fowler, Philadelphia, Pa. 756
Economical Gas Apparatus Construct'n Co., Toronto, Ont. 741
Frank D. Moses, Trenton, N. J. 739
Fred. Bredel Co., Milwaukee, Wis. 740
G. Shepard Page's Sons, New York City. 752
Humphreys & Glasgow, New York City. 753
Isbell-Porter Company, New York City. 754
Kerr Murray Mfg. Co., Fort Wayne, Ind. 752
Lloyd Construction Co., Detroit, Mich. 742
Logan Iron Works, Brooklyn, N. Y. 736
Quintard Iron Works, New York City. 753
R. D. Wood & Co., Philadelphia, Pa. 754
Riter-Conley Mfg. Co., Pittsburg, Pa. 755
Stacey Mfg. Co., Cincinnati, O. 755
The Connersville Blower Company, Connersville, Ind. 757
The Gas Machinery Co., Cleveland, O. 739
The Jeffrey Manufacturing Co., Columbus, O. 749
The Western Gas Construction Co., Fort Wayne, Ind. 720
United Gas Improvement Co., Philadelphia, Pa. 747

PROCESSES.

Bartlett, Hayward & Co., Baltimore, Md. 753
B. E. Chollar, St. Louis, Mo. 742
Economical Gas Apparatus Construct'n Co, Toronto, Ont. 744
Humphreys & Glasgow, New York City. 753
The Gas Machinery Co., Cleveland, O. 739
The Western Gas Construction Co., Fort Wayne, Ind. 720
United Gas Improvement Co., Philadelphia, Pa. 747

SCRUBBERS AND CONDENSERS.

Continental Iron Works, Brooklyn, N.Y. 754
Kerr Murray Mfg. Co., Fort Wayne, Ind. 752
Logan Iron Works, Brooklyn, N. Y. 736
R. D. Wood & Co., Philadelphia, Pa. 754
Riter-Conley Mfg. Co., Pittsburg, Pa. 755
The Gas Machinery Co., Cleveland, O. 739
The Western Gas Construction Co., Fort Wayne, Ind. 720

PRODUCER POWER PLANTS.

R. D. Wood & Co., Philadelphia, Pa. 754

TAR AND CARBONIC ACID EXTRACTOR.

The Gas Machinery Co., Cleveland, O. 739
The Western Gas Construction Co., Fort Wayne, Ind. 720

AMMONIA CONCENTRATORS.

Michigan Ammonia Works, Detroit, Mich. 736
The Gas Machinery Co., Cleveland, O. 739
The Western Gas Construction Co., Fort Wayne, Ind. 720

GAS METERS.

American Meter Co., New York and Philadelphia. 738
Detroit Meter Company, Detroit, Mich. 719
D. McDonald & Co., Albany, N.Y. 737
Helme & McIlhenny, Philadelphia, Pa. 739
John J. Griffin & Co., Philadelphia, Pa. 760
Keystone Meter Co., Royersford, Pa. 758
Maryland Meter and Mfg. Co., Baltimore, Md. 758
Metric Metal Co., Erie, Pa. 759
Nathaniel Tufts Meter Co., Boston, Mass. 758

PREPAYMENT METERS.

American Meter Co., New York and Philadelphia. 738
D. McDonald & Co., Albany, N. Y. 737
Helme & McIlhenny, Philadelphia, Pa. 739
John J. Griffin & Co., Philadelphia, Pa. 760
Keystone Meter Co., Royersford, Pa. 758
Nathaniel Tufts Meter Co., Boston, Mass. 758

PREPAYMENT METER ATTACHMENTS.

Reeves Mfg. Co., New Haven, Conn. 740

GAS AND WATER PIPES.

Charles Millar & Son Co., Utica, N. Y. 744
Christopher Cunningham, Brooklyn, N.Y. 740
Donaldson Iron Co., Emaus, Pa. 744
M. J. Drummond & Co., New York City. 744
R. D. Wood & Co., Philadelphia, Pa. 754
Warren Foundry and Machine Co., New York City. 744

SPECIALTIES FOR OIL AND PIPE LINES.

S. R. Dresser, Bradford, Pa. 741

GAS MAIN STOPPERS.

Safety Gas Main Stopper Co., N.Y. City. 744

GAS TAPPING MACHINES.

George Light, Dayton, O. 744
H. Mueller Manufacturing Company, Decatur, Ills. 741

GAS COALS.

Berwind-White Coal Mining Co., New York and Phila. 750
Perkins & Co., New York City. 750
Westmoreland Coal Co., Philadelphia, Pa. 752

CANNEL COALS.
Perkins & Co., New York City 750

STOKING MACHINERY.
G. A. Bronder, New York City 736

AUTOMATIC WEIGHING MACHINERY.
Richardson Scale Co New York City 740

CONVEYORS.
C. W. Hunt Company, New York City 741
G. A. Bronder, New York City 736
Kerr Murray Mfg. Co., Fort Wayne, Ind 752
The Gas Machinery Co., Cleveland, O 739
The Jeffrey Manufacturing Co., Columbus, O 749
The Link-Belt Machinery Co., Chicago, Ills 751
The Western Gas Construction Co., Fort Wayne, Ind ... 720

CHARGING BARROWS & COAL WAGONS.
Kerr Murray Mfg. Co., Fort Wayne, Ind 752

GAS ENRICHERS.
Gulf Refining Co., Pittsburg, Pa 750
Standard Oil Co., New York City 761
The Sun Oil Co., Pittsburg, Pa 751

COKE CRUSHERS.
C. M. Keller, Columbus, Ind 751
The Jeffrey Manufacturing Co., Columbus, O 749

STEAM BLOWER FOR BURNING BREEZE.
The Connersville Blower Company, Connersville, Ind ... 737

ECONOMIZERS.
Green Fuel Economizer Co., Matteawan, N.Y 742

GAS GAUGES.
The Bristol Co., Waterbury, Conn 749

GAS GOVERNORS.
Connelly Iron Sponge and Governor Co., New York City 703
Isbell-Porter Co., New York City 754
R. D. Wood & Co., Philadelphia, Pa 754

CEMENTS.
C. L. Gerould, Galesburg, Ills 748

RETORTS AND FIREBRICKS.
Adam Weber Sons, New York City 748
Baltimore Retort and Firebrick Co., Baltimore, Md 748
Brooklyn Firebrick Works, Brooklyn, N. Y 748
Henry Maurer & Son, New York City 748
James Gardner, Jr., Co., Pittsburg, Pa 748
J. H. Gautier & Co., Jersey City, N. J 748
Laclede Firebrick Mfg. Co., St. Louis, Mo 748
Missouri Firebrick Co., St. Louis, Mo 748
Parker-Russell Mining and Mfg. Co., St. Louis, Mo 737
The Kreischer Brick Mfg. Co., New York City 748

INCLINED RETORTS.
Adam Weber Sons (Graham, Morton [England] System) 738
Connelly Iron Sponge & Gov. Co. (Drake's [Eng.] System) 703

VERTICAL S'S.
Adam Weber Sons (Oscar B. Weber's Construction) 738
Connelly Iron Sponge & Gov. Co. (Drake's [Eng.] System) 703

REGENERATIVE FURNACES.
Adam Weber Sons, New York City 748
Bartlett, Hayward & Co., Baltimore, Md 753
Fred. Bredel Co., Milwaukee, Wis 740
J. H. Gautier & Co., Jersey City, N.J 748
Laclede Firebrick Mfg. Co., St. Louis, Mo 748
Missouri Firebrick Co., St. Louis, Mo. 748
Parker-Russell Mining and Mfg. Co., St. Louis, Mo 737

SELF-SEALING MOUTHPIECE DOORS.
Continental Iron Works, Brooklyn, N.Y 754
Isbell-Porter Co., New York City 754
Kerr Murray Mfg. Co., Fort Wayne, Ind 752
Logan Iron Works, Brooklyn, N.Y 756
R. D. Wood & Co., Philadelphia, Pa 754
The Gas Machinery Co., Cleveland, O 739
The Western Gas Construction Co., Fort Wayne, Ind ... 720

CHIMNEY CONSTRUCTION.
Adam Weber Sons, New York City 748

INCANDESCENT GAS LAMPS.
Ball Check Light Co., New York City 739
Detroit Arc Gas Light Co., Detroit, Mich 736
D. M. Steward Mfg. Co., Chattanooga, Tenn 740
Welsbach Company, Gloucester, N. J 746

BURNERS.
C. A. Gefrorer, Philadelphia, Pa 740
D. M. Steward Mfg. Co., Chattanooga, Tenn 740
Wm. M. Crane Co., New York City 741

LAVA GAS TIPS.
D. M. Steward Mfg. Co., Chattanooga, Tenn 740

STREET LAMPS.
Thos. T. W. Miner, New York City 741
Welsbach Street Lighting Co., New York and Phila 746

PURIFIERS.
Kerr Murray Mfg. Co., Fort Wayne, Ind 752
R. D. Wood & Co., Philadelphia, Pa 754
Stacey Mfg. Co., Cincinnati, O 755
The Western Gas Construction Co., Fort Wayne, Ind ... 720
Connelly Iron Sponge and Governor Co., New York City 740

PURIFYING MATERIALS.
Connelly Iron Sponge and Governor Co., New York City 740

(*Continued on page 736.*)

MINING ENGINEER.

An experienced mining engineer, being an all-round, practical mechanic, designer of a well thought out line of modern, large

TANDEM GAS ENGINES,

in commercial sizes, between 100 and 1,000-horse power, adapted to drive electric generators at highest economy, using producer or waste furnace gases, or crude oil as fuel, desires connection with capital or manufacturing interests. Exceedingly large profits can be demonstrated to inquirers' own engineers. Four patents pending.

1457-4 Address, "Z. X. Y.," care this Journal.

Position Wanted
AS MANAGER.

By a successful hustler for new business. Experienced in selling gas stoves; laying high and low pressure mains; understands the manufacture of coal and water gas in detail; also, reconstruction of benches and water gas apparatus. Superintendent of gas company for a number of years. Will find me up-to-date and energetic young man Can furnish best of references. Address, "PUSHER,"

1457-5 Care this Journal.

GENERAL MANAGER

Is open for engagement with a medium or large gas works. Is up to-date. Master of detail and distribution. Used to men. Has a thorough practical knowledge of all departments of a gas works.

1457-1 Address, "GAS MANAGER," care this Journal.

WANTED,
Situation as Superintendent of a Gas Company,

By a man of 36. Fifteen years' experience in the management of coal and water gas plants. Have been very successful in getting new business. Up-to-date in every detail and new methods of pushing the gas business. Can furnish good references. Good reasons for wishing to make a change.

1457-2 Address, "S. F.," care this Journal

Position Wanted
BY A YOUNG MAN.

Sixteen years' experience. Thoroughly trained in all branches of the gas business, especially fuel.

1456-2 Address, "J. W.," care this Journal.

Position Wanted
AS MANAGER OF A GAS COMPANY,

By a man thoroughly competent. Am successful in all details of the business, with several years' experience,

1452-tf Address, "G. A.," care this Journal.

Position Wanted.
Practical Gas Ledger Bookkeeper

Desires position as bookkeeper or cashier. Has had 8 years' experience with a large gas company. Thoroughly understands the business. Can furnish first class references.

1457-1 Address, "ADVANCE," care this Journal.

WANTED,
Position as Superintendent or Manager

Of coal, water or natural gas plant, by a competent, hustling business man, 37 years of age. Twelve years with present company. Good references.

1455-3 Address, "S. Q.," care this Journal.

POSITIONS WANTED
By Two Young Men

With Western gas company. Thoroughly experienced in the manufacturing of

GAS METERS.

1457-1 Address, "METERS." care this Journal.

WANTED,
FIRST-CLASS METER REPAIRERS.

Apply, with references, to

NEW AMSTERDAM GAS COMPANY,

1457-1 40TH ST. AND 1ST AVE., N. Y. CITY.

WANTED,
AN EXPERIENCED GAS MAKER,

To operate new machine. Steady employment and good wages.

Address, MOHAWK GAS COMPANY,

1457-2 SCHENECTADY, N. Y.

PARTNER WANTED.
Experienced Man in Gas Business Wishes Partner,

To erect gas works in one or two good towns. Will put services against money interest. Equal division. Address, "FIDELITY,"

1464-4 Care this Journal.

WANTED,
IN CENTRAL NEW YORK,

A first-class street foreman, competent to handle 50 men. Give age, experience and reference. Address, "A. C. G.,"

1456-2 Care this Journal.

FOR SALE.
5-FOOT WATER GAS APPARATUS.

Address, CHARLES G. M. THOMAS,

1449-tf Flushing, N. Y.

FOR SALE, CHEAP.

Four purifying boxes, 6 feet by 6 feet by 2½ feet, with 6 inch connections. Complete, with seal and all connections.

One purifying box, 10 feet by 10 feet by 3 feet.

One 12-pipe condenser, 6½ feet long, 20 inches wide and 10 inches deep, with 6 inch connections. All in first class condition.

Address, MARQUETTE GAS LIGHT CO.,

1454-tf MARQUETTE, MICH.

Apparatus Wanted.
FOUR SECOND-HAND PURIFIERS,

Ten feet by 12 feet by 4 feet, with 10-inch connections and seal, complete. Parties contemplating a change to larger boxes, adddress,

1455-4 GAS CO. OF WEST CHESTER, Westchester, Pa.

FOR SALE.
One Set of 8 Feet by 10 Feet by 4 Feet Deep Purifiers.

Complete, with dry centerseal and all connections, ready for immediate shipment.

Address, ANN ARBOR GAS COMPANY,

1457-2 Ann Arbor, Mich.

FOR SALE.
One High Pressure Roots' Exhauster and Engine,

On one bed. This machine is practically new, and has been delivering 100,000 per day, through 8 miles of 4-inch pipe line. Engine is direct connected to exhauster, and with them is included one cooling tank and all 8-inch connections.

1457-tf Address, "F. R. V.," care this Journal.

APPARATUS FOR SALE.

One Wrought Iron Gasholder, 50,000 cubic feet capacity, with lattice, steel guide framing, and 8-inch connections.
One 6-inch Connelly Automatic Street Main Governor.
Six 6-inch Valves, spigot ends.

Address the MARIETTA CONSOLIDATED GAS CO.,

1456-2 Mareitta, O.

(*Concluded from page 735.*)

VALVES.

Continental Iron Works, Brooklyn, N. Y. ... 754
Isbell-Porter Co., New York City ... 754
Kerr Murray Mfg. Co., Fort Wayne, Ind ... 752
Ludlow Valve Manufacturing Co., Troy, N.Y. ... 741
R. D. Wood & Co., Philadelphia, Pa. ... 754
The P. H. & F. M. Roots Co., Connersville, Ind. ... 748
The Western Gas Construction Co., Fort Wayne, Ind. ... 720

EXHAUSTERS.

Connelly Iron Sponge and Governor Co., New York City 708
Isbell-Porter Company, New York City ... 754
Kerr Murray Mfg. Co., Fort Wayne, Ind. ... 752
The Connersville Blower Company, Connersville, Ind. ... 753
The P. H. & F. M. Roots Co., Connersville, Ind ... 743

ELECTRICAL APPARATUS.

Wm. Henry White, New York City ... 755

PURIFIER SCREENS.

John Cabot, New York City ... 749

GAS STOVES.

American Meter Co., New York and Philadelphia ... 745
Keystone Meter Co., Royersford, Pa ... 759
Maryland Meter and Manufacturing Co., Baltimore, Md 758
Nathaniel Tufts Meter Co., Boston Mass ... 758

HOT WATER HEATERS.

The Humphrey Mfg. and Plating Co., Kalamazoo, Mich. 744

GASHOLDER TANKS.

J. P. Whittier, Brooklyn, N.Y. ... 742

GASHOLDERS.

Bartlett, Hayward & Co., Baltimore, Md. ... 755
Continental Iron Works, Brooklyn, N.Y. ... 754
Davis & Farnum Mfg. Co., Waltham, Mass. ... 752
Delly & Fowler, Philadelphia, Pa. ... 756
Kerr Murray Mfg. Co., Fort Wayne, Ind. ... 752
Logan Iron Works, Brooklyn, N Y. ... 756
R. D. Wood & Co., Philadelphia, Pa. ... 754
Riter-Conley Mfg. Co., Pittsburg, Pa. ... 756
Stacey Mfg. Co., Cincinnati, O. ... 756

STORAGE TANKS.

Christopher Cunningham, Brooklyn, N.Y. ... 749

AUTOMATIC SCALES.

Richardson Scale Co., New York City ... 740

INVESTORS.

W. R. Faben Construction Company, Toledo, O. ... 740

PATENTS, TRADE-MARKS, COPYRIGHTS.

Royal E. Burnham, Washington, D. C. ... 740

BOOKS, ETC.

Gas Analyst's Manual ... 756
Field's Analysis, 1901 ... 758
Gas Flow Computers ... 751
Excerpts from Reports of Gas Commissioners ... 759
Directory of Gas Companies ... 755
Gas Engineer's Laboratory Handbook ... 754
Gas Engineer's Pocket-Book ... 748
Poole on Fuels ... 751
Practical Handbook on Gas Engines ... 740
Hughes' "Gas Works" ... 740
Binders ... 751

Utilize Your Gas Liquor.
NO EXTRA LABOR OR OPERATING EXPENSES.
IMPROVED AMMONIA CONCENTRATOR.
About 100 in use. Write to
STROH & OSIUS, Patentees, or
MICHIGAN AMMONIA WORKS, - Detroit, Mich.

1903. **NEW DETROIT** 1903.

Force Draft
ARC GAS LAMP,

With double flash pilot. We save 25 per cent. gas over any other arc and produce more candle power. To light consumption what the gas range is to fuel.

A Handsome Fixture. Always in Order.

We will send one or more lamps on 30 days' trial to Gas Companies who maintain the lamps. Write for quotations and circulars. We will save you money.

Detroit Arc Gas Light Company,
67-71 Michigan Avenue, Detroit, Mich.

Bronder Patent Stoking Machinery.

Three-Scoop and Three-Rake Charging and Discharging Machines are operating in New York, Newark, N. J., Philadelphia, Worcester, Mass., Mt. Vernon, N. Y., Toronto and Montreal, Canada.

Four-Scoop and Four-Rake Charging and Discharging Machines are being furnished for Detroit, Mich.

These are the only machines that will draw or charge simultaneously three or four retorts (vertically) and handle from 42 to 60 retorts in from 25 to 30 minutes, lid opening and closing and filling of furnaces included.

Hot Coke Conveyor, Quencher and Steam Exhauster, operating in Toronto, Can., working in water-sealed flue, rollers being protected from heat and grit.

COAL CRUSHERS, CONVEYORS AND BINS. TURNTABLES FOR MACHINES.

Labor-Saving Machines for Handling Coal and Coke from Coal Cars to Coke Yard or Bins, a Specialty.

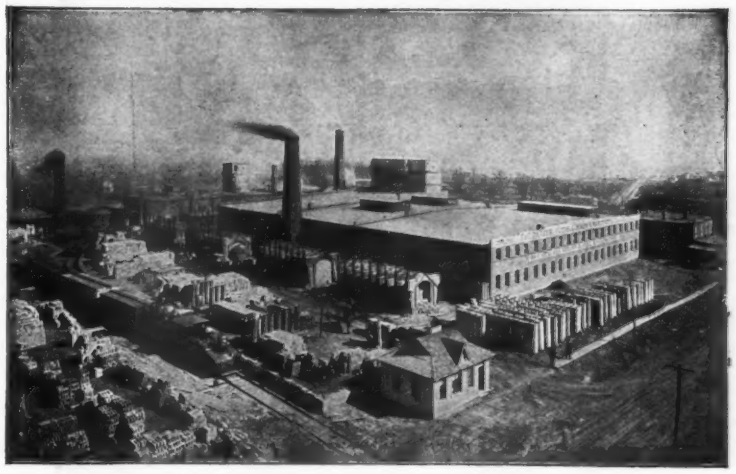
G. A. BRONDER,
Contracting Engineer and Builder,
229 BROADWAY, NEW YORK.

PARKER-RUSSELL MINING AND MFG. CO.,

PROPRIETORS OF THE

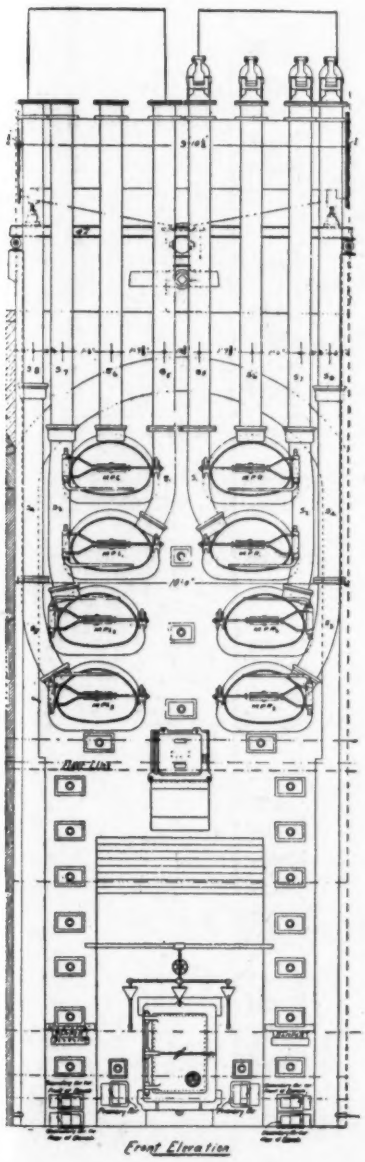
OAKHILL GAS RETORT AND FIREBRICK WORKS.

St. Louis Office:
417 Pine St.



FACTORY AT ST. LOUIS, MO.

New York Office:
Aldrich Court,
45 Broadway.



WE MAKE A SPECIALTY OF WATER GAS LININGS AND CHECKER BRICK.

Half and Full Depth Benches of Our Own Design,

Containing 6, 8 or 9 Retorts.

SLOPERS.--We have perfected plans of INCLINED RETORT BENCHES, designed to meet conditions prevailing in America, and constructed entirely of American materials.

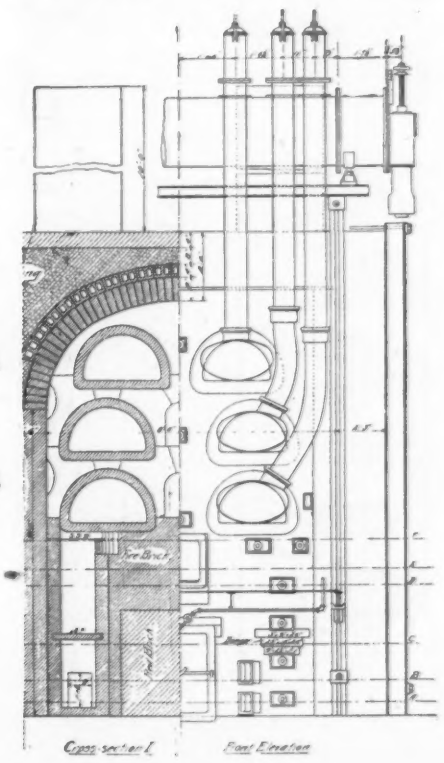
We build Benches complete, ready for gas making. Also

RETORT HOUSES,

COAL AND COKE CONVEYING MACHINERY.

Plans, Specifications and Estimates cheerfully furnished.

CORRESPONDENCE SOLICITED.



ADAM WEBER SONS.

BUILDERS AND CONSTRUCTORS OF THE

"MAURICE GRAHAM" SYSTEM OF

INCLINED RETORT

INSTALLATIONS COMPLETE.

WE HAVE A STAFF OF EXPERIENCED AND TRAINED ENGINEERS TO ERECT THIS SYSTEM.

THE LARGEST INSTALLATIONS IN THE WORLD WITH 20-FOOT RETORTS AND BENCHES OF 9'S IN ACTION. NOW OPERATING AT EDINBOROUGH, LEEDS, MILAN, PARIS, LONDON, ETC.

GRAHAM'S PATENT HOT COKE CONVEYOR.

FOR QUENCHING AND DRYING THE COKE DURING TRANSIT.

See Articles in AMERICAN GAS LIGHT JOURNAL, February 9th and 16th, 1903.

The Ball Check.

Pat. Nov. 25, 1902.

ANY BURNER.

ANY GAS--ANY PRESSURE.
INSTANT ADJUSTMENT.

HIGHEST EFFICIENCY.

"JUST A TWIST OF YOUR WRIST AND YOUR LIGHT IS BRIGHT."

"THE BALL DOES IT ALL."

Triple Arc Ball Check Lamp fits any chandelier or gas bracket. Three times the light of the single mantle burner, yet burns only double the amount of gas. More light—less gas. Greatest illuminator in the world for the money.

Send for the Ball Check Light Booklet.

BALL CHECK LIGHT CO.,
16 AND 18 PARK PLACE,
NEW YORK.

NEW ENGLAND BALL CHECK LIGHT CO.,
161 FRANKLIN STREET,
BOSTON.

FRANK D. MOSES

Long Distance Telephone, 1922, Trenton, N. J.

TRENTON, N. J.,

Long Distance Telephone, 1922, Trenton, N. J.

Constructing Engineer and Contractor.

Estimates Furnished on any kind of Work in Connection with Gas or Water Plants.

SPECIAL ATTENTION GIVEN TO THE REMODELLING AND EXTENDING OF THE PROPERTIES OF WORKS NOT UP-TO-DATE.

CORRESPONDENCE SOLICITED.

P. PLANTINGA, President. W. E. STEINWEDELL, Secretary.

THE GAS MACHINERY CO.,

OFFICES: 720-722 CITIZENS BUILDING,

CLEVELAND, OHIO.

Coal and Water Gas Apparatus, Bye-Product Machinery, Structural Work and Connections.

See Articles in AMERICAN GAS LIGHT JOURNAL, February 9th and 16th, 1903.

STEWARD BURNERS.

6 SIZES. 5 PRESSURES.

Made with a check to consume rated amounts accurately.

SIZES, - 1½, 2, 3, 4, 5, 6 feet. - - - PRESSURES, - 8/10, 12/10, 15/10, 20/10, 25/10.

THE D. M. STEWARD MFG. CO., ESTABLISHED 1876.

NEW YORK: 107 Chambers Street. CHICAGO: 57 Washington Street. FACTORY AND GENERAL OFFICE: Chattanooga, Tenn.

Gas Analyses of All Sorts and Conditions,

—OR—

Analyses of Solid and Liquid Materials as Well,

That are needed by Gas Companies at any time in the conduct of their business, may be obtained from

DR. W. H. BIRCHMORE,

1421-tf 341 ADELPHI ST., BROOKLYN, N. Y.

IN THE MARKET.

WE PURCHASE:

Gas properties,
Electric light properties.
Street railway properties.
Also desirable franchises.

W. R. FABEN CONSTRUCTION CO.,

1383-tf 317 St. Claire Street, Toledo, O.

PATENTS, TRADE-MARKS, COPYRIGHTS.

ROYAL E. BURNHAM,

Solicitor of Patents and Counsellor in Patent Causes.

833 Bond Building, Washington, D. C.

Send for Pamphlet on Patents.

1448-tf

AUTOMATIC SCALES

Send for Catalogue.

RICHARDSON SCALE CO., 21 Park Row, NEW YORK CITY.

GAS BURNERS,

To burn a given amount at a stated pressure, made to order. Samples furnished. Also, small oil and air valves, slow-feed valves for high pressure, and small brasswork in general.

Drip Pumps, Service Cleaners, Gasfitters' Proving Pumps and Mercury Gauges.

C. GEFRORER & SON,

248 North 8th Street, Philadelphia, Pa.

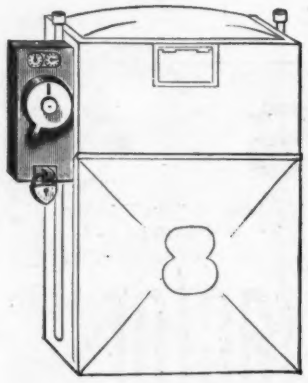
HUGHES' "GAS WORKS,"

Their Construction and Arrangement, and the Distribution of Coal Gas.

Originally written by SAM'L HUGHES, C.E. Rewritten and much enlarged by WM. RICHARDS, C.E.

Eighth Edition. Revised, with Notices of Recent Improvements. **Price, $1.65.**

A. M. CALLENDER & CO., 42 PINE ST., N. Y. CITY.



THE REEVES PREPAYMENT ATTACHMENT

HAS ADVANTAGES POSSESSED BY NO OTHER DEVICE OF THE KIND.

FATAL ACCIDENTS CAUSED BY CANNOT OCCUR

CONSUMERS PUTTING COIN IN METER AND SO TURNING GAS ON IN SLEEPING ROOMS WHERE IT HAD GONE OUT WITH THE **REEVES,** AS THE LIGHT DROPS TO A VERY SMALL ONE, BUT DOES NOT GO OUT FOR 10 OR MORE HOURS, AND AMOUNT OF GAS SO USED IS AUTOMATICALLY DEDUCTED FROM NEXT PREPAY. HAS OTHER GREAT ADVANTAGES. FITTED TO ANY MAKE OF METER. $10 CAN BE PREPAID AT ONE TIME. DEVICE CANNOT BE "BEATEN."

REEVES MFG. CO., - - - NEW HAVEN, CONN.

FRED. BREDEL, President. WM. O. VILTER, Vice-President. O. W. GREENSLADE, Secretary and Treasurer.

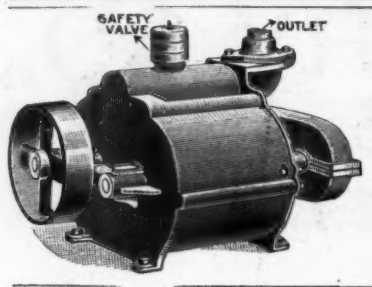
FRED. BREDEL COMPANY,

ENGINEERS AND BUILDERS OF GAS PLANTS.

Inclined Benches, own system, Recuperative Furnaces, Exhausters, Exhauster Governors, Condensers, Washers, Coolers, Wet Purifying Plants, Purifiers, Oxide Elevators, Hydraulic and Dry Coke Conveyors.

Special High Grade Material for Recuperative Furnaces.

Licensees for ARROLL-FOULIS Charging and Discharging Machines and FRONHAUSER Coke Conveyors. OFFICE, 405 KEENE ST., MILWAUKEE, WIS.



REVIVIFYING IN SITU.

An inexpensive device for admitting air into purifying boxes. Belted direct to exhauster shaft the speed of blower is automatically regulated. Size shown in cut, 10" x 10½" x 16", has a capacity of 172 cubic inches per revolution, and can be speeded to admit any percentage of air desired. Specially designed for gas companies.

A large number of these machines are now in daily use, giving entire satisfaction.

Correspondence Solicited.

CONNELLY IRON SPONGE AND GOVERNOR CO.,

395 Broadway, New York.

PRACTICAL HANDBOOK ON GAS ENGINES, WITH INSTRUCTIONS FOR CARE AND WORKING OF THE SAME,

By G. LIECKFELD, C.E. Translated with Permission of the Author, by GEO. M. RICHMOND, M.E. Price, $1.00.

A. M. CALLENDER & CO., 42 PINE ST., NEW YORK CITY.

Have you seen BRAY'S

New "ELTA" Burners?

These are the only Acetylene Burners which can be turned high or low without carbonizing, and, therefore, they remove one of the greatest barriers to the progress of lighting by Acetylene. Write for further information.

WILLIAM M. CRANE COMPANY,

SOLE AGENTS FOR THE UNITED STATES,

1131 Broadway, New York.

Automatic Back Lever. No. 970210.

Steel Coal Tubs.

Do you need coal tubs? If so, write to us for particulars and prices of sizes needed. We have had thirty-one years' experience in building tubs, and can supply you with those you need.

We carry in stock sizes varying from one-fifth ton to 1 ton, and can ship immediately.

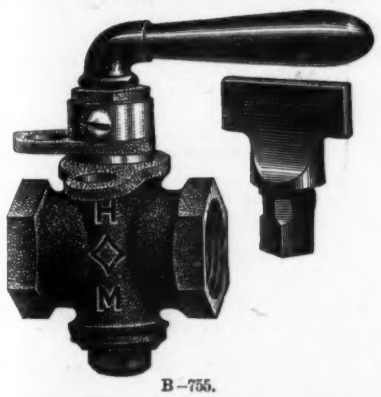
Write for Catalog 021.

Side Catch. No. 0277.

C. W. Hunt Company,
New York Office: 45 Broadway.

Works and Office:
West New Brighton, Staten Island, N. Y.

Mueller Gas Cocks.



B–755.

TOO little is not as much as you pay for, and too much is more paid for than you need.

In **Mueller Gas Cocks** you find a happy medium--not so little metal as to leave them weak, nor yet so much as to make them costly.

Made in 145 styles, seven sizes in each style.

MADE ONLY BY

H. MUELLER MFG. CO.,

DECATUR, ILLS., U. S. A.

"THE MINER"

Globe
Street and Boulevard
Lamps.

Cheapest and Best.

THOUSANDS IN USE WITH INCANDESCENT BURNERS.

Send for Catalogues.

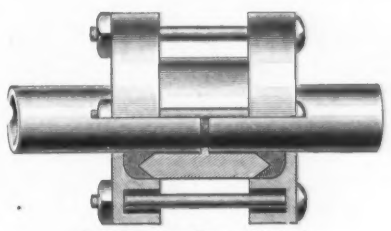
THOMAS T. W. MINER,

821-823 Eagle Av., N.Y.

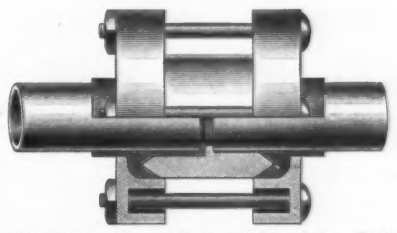
S. R. DRESSER,

BRADFORD, PENNSYLVANIA, U. S. A.,

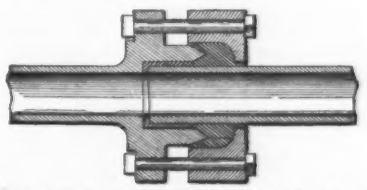
Patentee and Manufacturer of Specialties for Oil and Gas Lines.



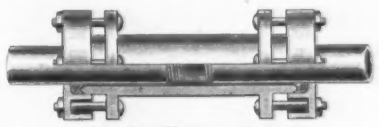
Regular Coupling. Style 1.



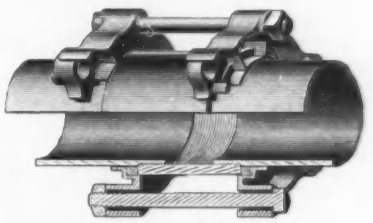
Insulating Coupling for Wrought Iron Pipe Style 5.



Insulating Coupling for Bell and Spigot Cast Iron Pipe. Style 6.



Regular Sleeve. Style 2.



Clamp. Style 4.

Pipe Couplings, Sleeves, Clamps, Crosses, Tees and Ells.

My Insulating Coupling prevents the destruction of pipe by electrolytic action, in either water or gas lines.

SEND FOR CATALOGUE.

THE

Ludlow Valve Mfg. Co.,

TROY, N. Y., U. S. A.

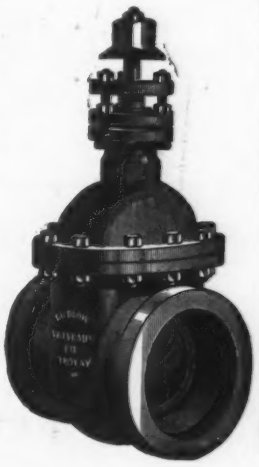
Double and Single Gate Valves, ¼" to 72",

—FOR—

Gas, Water, Steam, Oil, Ammonia, Etc.

HOT GAS VALVES A SPECIALTY.

Send for Catalogue.



LLOYD CONSTRUCTION COMPANY,

DETROIT, MICH.

LOWE DOUBLE SUPERHEATER WATER GAS APPARATUS.

Coal Gas Condensing and Scrubbing Apparatus.
Purifiers with Plain or Reversing Center Valves.
The Lloyd System of Valve Connections.
PLAIN OR REVERSING (PATENT APPLIED FOR).
Oxide, Coal and Coke Elevators and Machinery.
Pipe Specials, all sizes. A. G. L. Asn. Standard.
Structural Steel Work, Floors, Angle and Gate Valves.

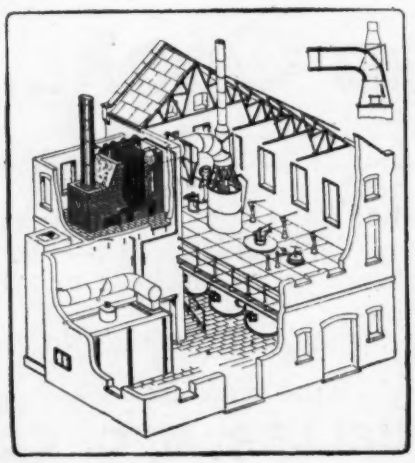
General Western Agents for BARTLETT, HAYWARD & CO., Baltimore, Md.

COAL GAS CONDENSATION SYSTEM. THE "MAYER" PATENTED TAR EXTRACTOR. THE STANDARD ROTARY WASHER-SCRUBBER. STETTIN SYSTEM INCLINED BENCHES, HYDRAULIC VALVES, ETC., ETC.

Economize Heat in Water Gas Plants,

BY UTILIZING A

Green's Economizer,



To absorb the heat now going to waste when you blow through your superheater to heat the feed water for your boilers to the temperature of the steam. This is now being done at the Poughkeepsie Gas Works, Poughkeepsie, N. Y. : : : : :

Write for full particulars how this is accomplished, the saving effected, and the advantages gained, to the

GREEN FUEL ECONOMIZER CO.,
MATTEAWAN, N. Y.

GASHOLDER TANKS AND GAS WORKS MASONRY COMPLETE

Plans prepared and Estimates furnished at short notice.

J. P. WHITTIER,
238 Java Street, Brooklyn, N. Y.

GEORGE R. ROWLAND,

Formerly with the Continental Iron Works.

Draughtsman and Constructing Engineer.

Drawings, Specifications and Estimates furnished for the construction of new works or alteration of old works. Special attention given to Patent Office drawings.

Office, No. 245 Broadway, N. Y. City.

Chollar's System of Gas Purification.

THE PURIFIED GAS REVIVES THE FOULED OXIDE.

THE GAS ENGINEERS' POCKET-BOOK.

By Henry O'Connor,

Comprising Tables, Notes and Memoranda relating to the Manufacture, Distribution and Use of Coal Gas, and the Construction of Gas Works.

PRICE, $3.50.

A. M. CALLENDER & CO., No. 42 Pine Street, New York City.

The Advertisement of the

CONNELLY IRON SPONGE AND GOVERNOR COMPANY,

395 Broadway, New York City,

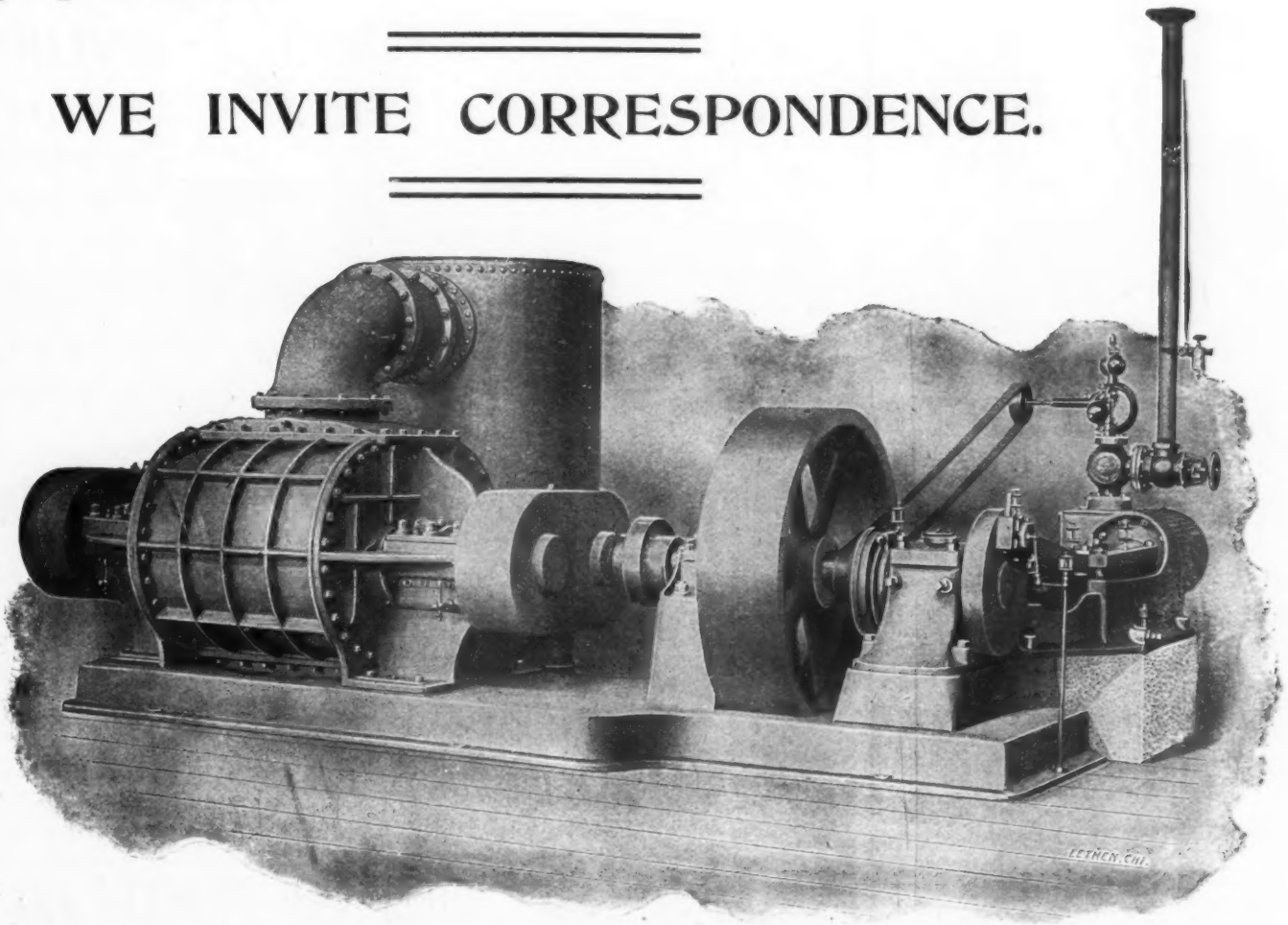
Occupies this Space Every Alternate Week.

ROOTS'

HORIZONTAL GAS EXHAUSTER.

WE are building a line of Exhausters as per cut herewith, for forcing gas long distances and under pressures that are higher than ordinary pressures.

WE INVITE CORRESPONDENCE.



P. H. & F. M. ROOTS CO.,

HOME OFFICE: Connersville, Ind. **NEW YORK OFFICE: 120-122 Liberty St.**

EASTERN OFFICE:

CONNELLY IRON SPONGE AND GOVERNOR CO., 395 BROADWAY, NEW YORK CITY.

"Globe Specials" "Glamorgan" Pipe Fittings, Valves, Etc.

M. J. DRUMMOND & CO.

MANUFACTURERS OF

CAST IRON FLANGE GAS and WATER PIPE

GENERAL SALES OFFICE, 192 BROADWAY, NEW YORK.

GEORGE ORMROD, Mangr. & Treas., Emaus, Pa.
JOHN DONALDSON, Prest., Betz Bldg., Phila., Pa.

EMAUS PIPE FOUNDRY

DONALDSON IRON COMPANY. EMAUS, PA.

CAST IRON GAS & WATER PIPE

MANUFACTURERS OF

CAST IRON PIPE AND SPECIAL CASTINGS

FOR WATER AND GAS.

Also, FLANGE PIPE, LAMP POSTS, Etc.

GAS TAPPING MACHINES

—FOR—

Drilling and Tapping Pipe under Pressure

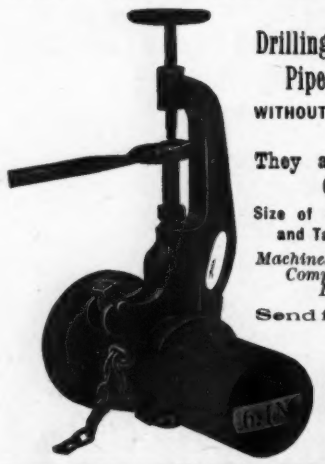
WITHOUT ANY ESCAPE OF GAS.

They are Strong and Compact.

Size of Combination Drills and Taps ¾ to 4-inch.

Machines Sent to any Gas Company for Thirty Days' Trial.

Send for Circulars.



Geo. Light,
DAYTON, O.

THE ECONOMICAL GAS APPARATUS CONSTRUCTION COMPANY, LIMITED,

Consulting Engineers.

Builders of UP-TO-DATE Machinery and Appliances for Coal and Water Gas Plants. :: :: :: :: ::

PLANS,
SPECIFICATIONS
AND ESTIMATES
PREPARED.

AMERICAN OFFICE:
269 Front St., East, Toronto, Canada.

THE
Valuation of Gas, Electricity and Water Works
FOR ASSESSMENT PURPOSES.

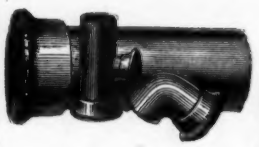
THOS. NEWBIGGING, M.Inst.C.E., and WM. NEWBIGGING, Assoc.M.Inst.C.E.

With an Appendix of Decided Cases.
Second Edition. Price $2. For Sale by
A. M. CALLENDER & CO.,
42 Pine Street, N. Y. City.

WARREN FOUNDRY AND MACHINE CO.,

Established 1856. Works at Phillipsburgh, N. J.

New York Office, 160 Broadway.



CAST IRON WATER AND GAS PIPE,

FROM THREE TO FORTY-EIGHT INCHES DIAMETER. ALSO, ALL SIZES OF

Flange Pipe for Sugar House and Mine Work. Branches, Bends, Retorts, etc., etc.

CHARLES MILLAR & SON CO., Selling Agents, Utica, N.Y.

Flanged Pipe and Fittings, Hydrants, Gates, Pig Lead, Jute, etc.

UTICA PIPE FOUNDRY CO.

Manufacturers of Lead Pipe, Solder, etc., and Jobbers of Plumbers and Tinners' Goods.

CAST IRON PIPE and SPECIALS FOR WATER AND GAS

Wholesale Eastern Agents AKRON VITRIFIED SEWER PIPE.

SAFETY GAS MAIN STOPPER COMPANY,

For Shutting Off Gas in Mains

Any size gas main can be shut off in 30 seconds. : : :

Temporarily during alterations and repairs. : : : :

STOPPERS SENT ON TRIAL.

Address: SAFETY GAS MAIN STOPPER CO., 108 E. 117th St., New York City.

THE No. 8

Humphrey Crescent Instantaneous Water Heater

IS A QUICK SELLER.

PRICE,

$20.00.

SHELF AND BRACKET FREE.

HAS NO EQUAL AT THE PRICE.

TRY ONE AND BE CONVINCED. WILL SEND ON 60 DAYS' APPROVAL.

HAVE YOU OUR CATALOGUE?

The Humphrey Mfg. and Plating Co.,

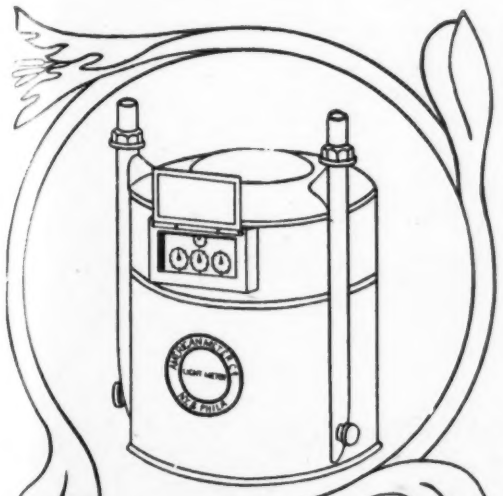
KALAMAZOO, MICH., U. S. A.

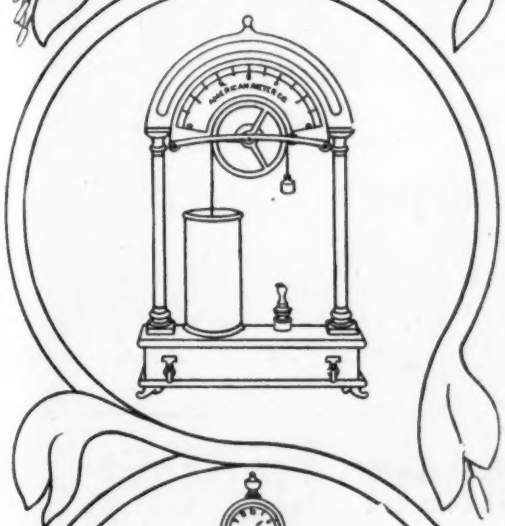
(Copyrighted, 1894, by the AMERICAN METER CO.)

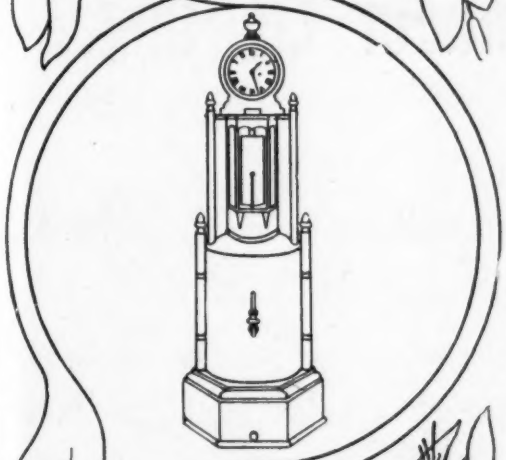
AMERICAN METER CO.

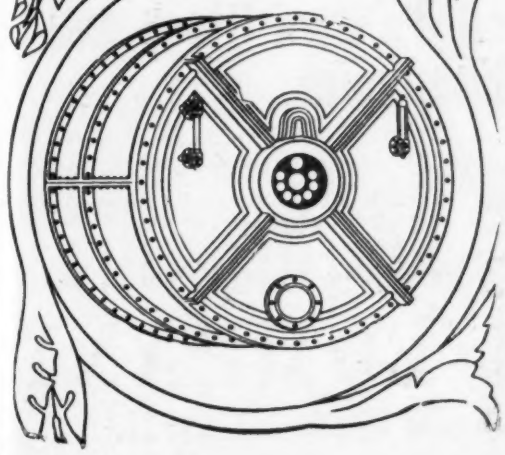
ESTABLISHED 1834. INCORPORATED 1868.

NEW YORK,
PHILADELPHIA,
CHICAGO,
ST. LOUIS,
SAN FRANCISCO.









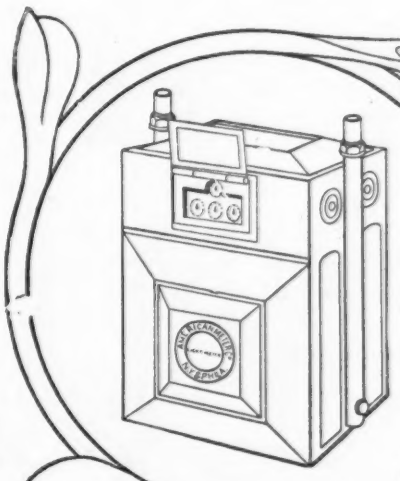
PUBLIC LIGHTING TABLE.

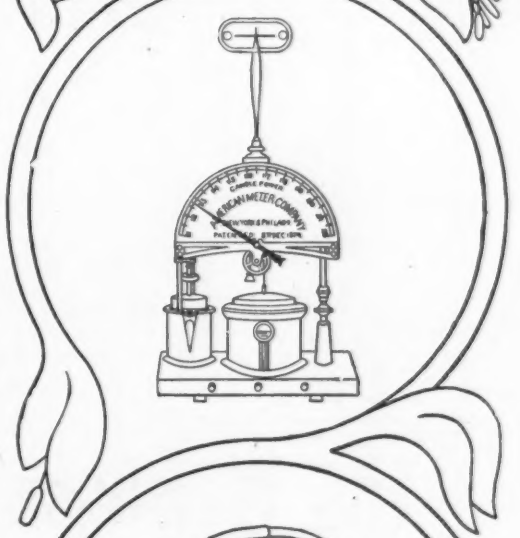
MAY, 1903.

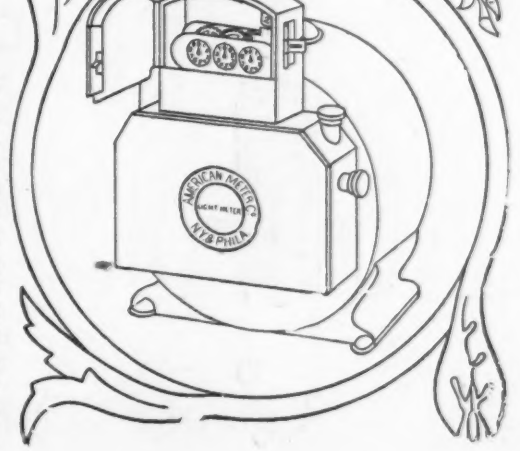
Day of Week.	Date.	Table No. 1. Following the Moon. Light.	Table No. 1. Following the Moon. Extinguish.	Table No. 2. New York City. All Night Lighting. Light.	Table No. 2. New York City. All Night Lighting. Extinguish.
				P.M.	A.M.
Fri.	1	7.20 PM	4.10 AM	6.45	4.00
Sat.	2	11.10	4.10	6.45	4.00
Sun.	3	11.50 FQ	4.00	6.45	4.00
Mon.	4	12.30 AM	4.00	6.45	4.00
Tue.	5	1.10	4.00	6.45	4.00
Wed.	6	1.40	4.00	6.45	4.00
Thu.	7	2.10	4.00	6.55	3.40
Fri.	8	2.50	4.00	6.55	3.40
Sat.	9	3.20	4.00	6.55	3.40
Sun.	10	No L.	No L.	6.55	3.40
Mon.	11	No L. FM	No L.	6.55	3.40
Tue.	12	No L.	No L.	6.55	3.40
Wed.	13	7.30 PM	10.00 PM	6.55	3.40
Thu.	14	7.30	10.50	7.00	3.30
Fri.	15	7.30	11.40	7.00	3.30
Sat.	16	7.30	12.10 AM	7.00	3.30
Sun.	17	7.40	12.50	7.00	3.30
Mon.	18	7.40	1.20	7.00	3.30
Tue.	19	7.40 LQ	2.00	7.00	3.30
Wed.	20	7.40	2.30	7.00	3.30
Thu.	21	7.40	3.00	7.10	3.15
Fri.	22	7.40	3.30	7.10	3.15
Sat.	23	7.40	3.40	7.10	3.15
Sun.	24	7.50	3.40	7.10	3.15
Mon.	25	7.50	3.40	7.10	3.15
Tue.	26	7.50 NM	3.40	7.10	3.15
Wed.	27	7.50	3.40	7.10	3.15
Thu.	28	7.50	3.40	7.15	3.15
Fri.	29	7.50	3.40	7.15	3.15
Sat.	30	7.50	3.40	7.15	3.15
Sun.	31	10.30	3.30	7.15	3.15

TOTAL HOURS LIGHTING DURING 1903.

By Table No. 1.	Hrs. Min.	By Table No. 2.	Hrs. Min.
January	245.00	January	423.20
February	192.00	February	355.25
March	201.00	March	355.35
April	167.20	April	298.50
May	152.00	May	264.50
June	131.00	June	234.25
July	140.40	July	243.45
August	156.20	August	280.25
September	171.20	September	321.15
October	198.20	October	374.30
November	216.30	November	401.40
December	232.10	December	433.45
Total, yr.	2203.40	Total, yr.	3987.45



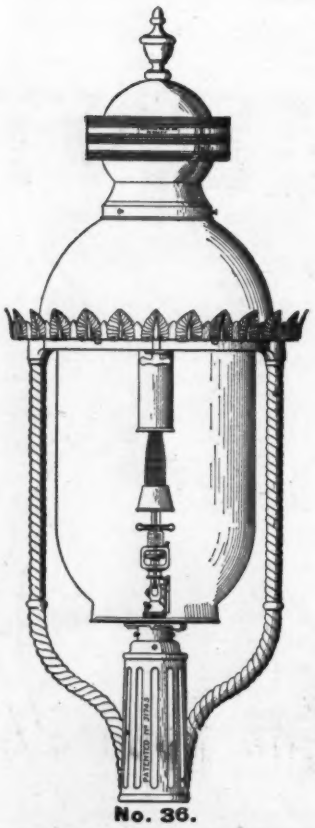




NEW YORK, 33 Nassau Street. PHILADELPHIA, Broad and Arch Streets. CHICAGO, Foot of Orleans Street. BOSTON, 624 Tremont Building.
CLEVELAND, 809 Cuyahoga Building. ST. LOUIS, 712 Roe Building. SAN FRANCISCO, 712 Polk Street.

WELSBACH STREET LIGHTING COMPANY

.... OF AMERICA ....



No. 36.

Controls and Operates the

Welsbach System of Street Lighting,

Which includes its specially DESIGNED AND PATENTED BURNER for STREET and PARK LIGHTING exclusively.

Uniformly SUCCESSFUL in 150 Cities and Towns.

By means of the Welsbach System of street lighting the superiority of GAS over electricity for street lighting has been fully demonstrated.

POINTS OF MERIT:

It is { Economical, Attractive, Successful, Up-to-date.

IT LIGHTS THE STREET.

Where there are no gas mains we can furnish an equally good light by our SELF-GENERATING NAPHTHA WELSBACH BURNER, and thereby supply a uniform light in all localities.

Correspondence Solicited from Gas Companies and Others Interested in Municipal and Outside Lighting.

No. 38.

The Welsbach Gas Arc for Indoor Lighting.

The cut tells the story—but not all of it. Get one lamp and light it—then the tale's told from beginning to end. For one Welsbach Gas Arc Lamp is a better salesman than 20 pages of advertising.

Here's what it would show if you give it a chance to prove its worth:

1. A mechanical construction and finish that insures the greatest durability.
2. The renewal of mantles and the cleaning of globes without removal of globe.
3. The greatest amount of candle power with least consumption of gas.
4. A by-pass cock so constructed as to permit all or only one mantle burning at a time.
5. A pilot light that consumes but 1 foot of gas in 24 hours. Costs $\frac{1}{10}$ of a cent a day.

Give it a Chance to Tell its Own Story and it Won't Disappoint.

Let us send you one lamp—doesn't cost a fortune—and it will answer every question you put to it; make good on every test given it. You know the only proof of the pudding? What's the use in a fellow telling you it tastes good? Taste it yourself, then you know.

May we Send you ONE Lamp?

WELSBACH COMPANY,

GLOUCESTER, N. J., and CHICAGO, ILL.

THE UNITED GAS IMPROVEMENT COMPANY

During the Year 1902 has been Awarded Contracts in the Following Places for

Standard Double-Superheater Lowe Water Gas Apparatus.

Atlantic City, N. J.	Flushing, N. Y.	Norristown, Pa.
Ardmore, Pa.	Hollidaysburg, Pa.	Norwalk, O.
Auburn, N. Y.	Houston, Tex.	Ocean City, N. J.
Belmar, N. J.	Indianapolis, Ind.	Oklahoma City, O. T.
Blue Island, Ills.	Jersey City, N. J.	Oneonta, N. Y.
Boonton, N. J.	Laconia, N. H.	Plainfield, N. J.
Brooklyn, N. Y.	Lakewood, N. J.	Portland, Me.
Carlisle, Pa.	La-Salle-Peru, Ills.	Pottsville, Pa.
Champaign, Ills.	Martinsville, Ind.	Scranton, Pa.
Coney Island, N. Y.	Memphis, Tenn.	South Brooklyn, N. Y.
Dallas, Tex.	Newark, N. J.	Suffern, N. Y.
Danville, Ills.	New Brunswick, N. J.	Swedesboro, N. J.
Des Moines, Ia.	New London, Conn.	Syracuse, N. Y.
Evanston, Ills.	New Orleans, La.	Washington, N. C.
Evansville, Ind.	Norfolk, Va.	Woonsocket, R. I.

TOTAL SETS, 1902, ... 51
TOTAL DAILY CAPACITY, 1902, . . 32,825,000 cubic feet.
TOTAL SETS TO DATE, ... 447
TOTAL DAILY CAPACITY, ... 299,670,000 cubic feet.

The United Gas Improvement Company,

Broad and Arch Streets, Philadelphia.

Established 1858. Incorporated 1890.
CHAS. E. GREGORY, Prest. DAVID R. DALY, V.-Prest. & Treas.
H. D. ABERNETHY, Sec.

J. H. Gautier & Co.

Greene & Essex Streets,
Jersey City, N. J.

MANUFACTURERS OF

CLAY GAS RETORTS, FIRE CLAY TILES,
FIRE BRICK and FIRE CLAY SPECIALTIES

Ground Fire Clay, Fire Sand and Ground Fire Brick in Barrels and Bulk.

SOLE MANUFACTURERS OF THE

FLEMMING GENERATOR GAS FURNACE

Brooklyn Fire Brick Works,

OFFICE AND WORKS:
88 VAN DYKE ST., BROOKLYN, N. Y.
MANUFACTURERS OF

CLAY GAS RETORTS & SETTINGS, GENERATOR LININGS. SPECIALTIES.

Established 1854. Incorporated 1869.

LACLEDE
Fire Brick Manufg. Co.,

Manufacturers of { GAS RETORTS . .
FIRE BRICK . . .
RETORT SETTINGS

Water Gas Cupola Linings, Fire Clay, Etc.

Proprietors for the U. S., Coze System of Inclined Benches.

Estimates Furnished on Application for Most Successful Style of Construction.

Also for Free-Firing and Full and Half-Depth Regenerative Benches, for Burning either Coal or Coke in the Furnaces.

Office:
Cor. Manchester and Sulphur Avenues, St. Louis, Mo.

Established 1845. Reorganized 1902.

The Kreischer Brick Mfg. Co.,

Manufacturers of the very best quality of Clay Retorts, Blocks, Tiles, Settings and Firebrick of every description.

Also Miners and Shippers of Fireclay, Fire Sand, Ground Brick in Barrels.

WORKS: KREISCHERVILLE, STATEN ISLAND.
OFFICE: 119 E. 23D STREET, NEW YORK CITY.

Adam Weber Sons.

Works, Weber, N. J.
Main Offices, Park Row Bldg., New York.

Modern Recuperative Furnaces.

Standard Fire Brick and Gas Retorts.

OSCAR B. WEBER'S

Construction Vertical 8's (Patented). First Instalment in the World with Modern Charging and Discharging Machinery.

AGENTS FOR

GRAHAM, MORTON & CO.,
LEEDS ENGLAND,
INCLINED RETORT SYSTEM.

Perforated Radial Block Chimneys.

AGENCIES.
HERBERT B. HAM, 80 Water Street, Boston, Mass.
BAKER ENGINE AND MACHINE CO., 114 N. 3d St., Phila., Pa.
JOHN T. WHEELER, 933-934 Monadnock Bldg., Chicago, Ills.

ISAAC C. BAXTER, President. ESTABLISHED 1864. PETER YOUNG, Sec'y and Treas.

Works,
LOCKPORT STATION, PA.

JAMES GARDNER, JR., CO.,

Address all communications to
JAMES GARDNER, JR., CO., Room 202 Lewis B'l'dg.
PITTSBURGH, PA.

Successor to WILLIAM GARDNER & SON.

Fire Clay Goods for Gas Works.

HENRY MAURER & SON,

(ESTABLISHED 1856.)

EXCELSIOR FIRE BRICK & CLAY
RETORT WORKS

WORKS, Perth Amboy, N. J.
OFFICE, 418 to 422 East 23d St., N. Y.

Clay Gas Retorts,
BENCH SETTINGS,
Fire Brick, Tiles, Etc.

GEROULD'S IMPROVED RETORT CEMENT

A Cement of great value for patching retorts, putting on mouthpieces, making up all bench-work joints, lining blast furnaces and cupolas. This cement is mixed ready for use. Economic and thorough in its work. Fully warranted to stick.

Price List, f.o.b. Galesburg, Ills., or Buffalo, N. Y.
In Casks, 400 to 800 pounds, at 5 cents per pound.
In Kegs, 100 to 200 " " 6 " "
In Kegs less than 100 " " 7 " "

C. L. GEROULD, Galesburg, Ills.

For orders East of Buffalo, N. Y., or Pittsburg, Pa., freight will be paid to these points.

The Gas Engineer's Pocket-Book,

By HENRY O'CONNOR.

Comprising Tables, Notes and Memoranda relating to the Manufacture, Distribution and Use of Coal Gas, and the Construction of Gas Works.

PRICE, $3.50.

For Sale by

A. M. CALLENDER & CO., 42 Pine Street, New York City.

THEO. J. SMITH, Prest. J. A. TAYLOR, Sec.
A. LAMBLA, Vice-Prest. and Supt.

BALTIMORE
RETORT & FIRE BRICK CO.

MANUFACTORY AT
LOCUST POINT, BALTIMORE, MD.

Clay Retorts, Blocks & Tiles

FIRE BRICK, FIRE CLAY, AND FIRE CEMENT.

Our Improved Half and Full Dept Benches have been Adopted by Many Gas Companies.

WALDO BROS., 102 MILK ST., BOSTON, MASS.

Sole Agents for New England States.

JOHN DELL,
President and General Manager.

MISSOURI FIRE BRICK CO.,

ESTABLISHED 1882.

MANUFACTURERS OF

Gas Retorts, Bench Settings, Fire Brick, Cupola Linings, Etc.

We are the **Exclusive Agents** *for the* **Mitchell Patent Benches,** *Constructed with Half or Full Depth Furnaces, to Burn either Coal or Coke, and Arranged for Front or* **Rear Clinkering.** **The Mitchell** *is the* **Original Coal Firing Bench.** *We also Erect Plain Benches with* **One** *to* **Six Retorts.**

YOUR CORRESPONDENCE IS RESPECTFULLY SOLICITED.

City Office:
411 Olive Street, Continental Bank,
ST. LOUIS, MO.

CHRISTOPHER CUNNINGHAM,

PROPRIETOR,

THE NOVELTY STEAM BOILER WORKS,

BROOKLYN, N. Y.

STORAGE TANKS FOR GAS WORKS,

To Retain Fluid Material of Any Sort.

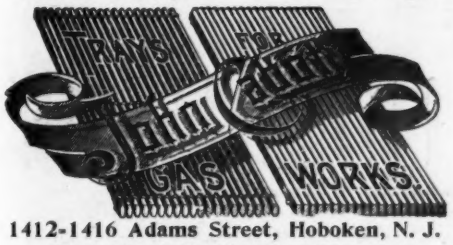
PIPING IN AND AROUND GAS WORKS.

Work Done for Several of the Largest Gas Companies in America Stands as Reference.

Church's Patent Trays.

Reversible; Strongest; Most Easily Repaired.

Special Trays for Iron Sponge.



1412-1416 Adams Street, Hoboken, N. J.

We also Supply the Chapest and Strongest

•Reversible Bolted Trays•

IN THE MARKET.

SEND FOR BOOKLET AND CIRCULARS.

Bristol's Recording

PRESSURE GAUGE.

For continuous records of

Street Gas Pressure

Simple in construction, accurate in operation and low in price.

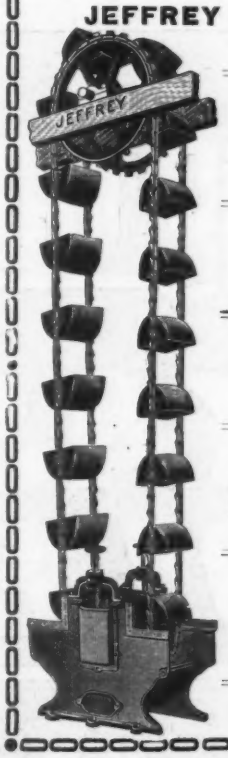
Fully Guaranteed. Send for Circulars.

THE BRISTOL CO.,

Waterbury, Conn.

Silver Medal, Paris Exposition.

JEFFREY ELEVATORS FOR ALL KINDS OF WORK.



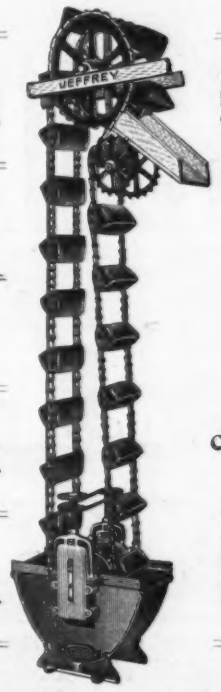
COAL HANDLING MACHINERY.

COKE CRUSHERS.

SHAKING SCREENS.

POWER TRANSMISSION MACHINERY.

ASHES HANDLING MACHINERY.

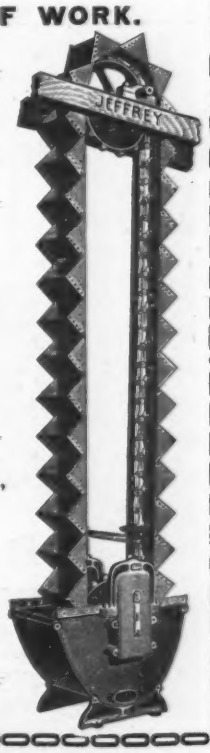


SEND FOR CATALOGUE.

THE JEFFREY MFG. CO.,

COLUMBUS, O., U. S. A.

NEW YORK, CHICAGO, DENVER, BUFFALO, PHILADELPHIA.



The Gas Engineer's Laboratory Handbook,

By JOHN HORNBY, F.I.C. Price, $2.50.

Orders may be sent to

A. M. CALLENDER & CO., 42 Pine St., N. Y.

JAMES D. PERKINS, President. F. SEAVERNS, Treasurer.

THE PERKINS COMPANY,

228 and 229 Produce Exchange, New York City.

TIDEWATER SALES AGENTS FOR THE FOLLOWING:

Ocean Mine Youghiogheny Gas Coal,
Old Kentucky Shale and O. K. Boghead.

SHIPMENTS FROM NEW YORK. PHILADELPHIA, BALTIMORE AND NORFOLK

BERWIND-WHITE COAL MINING COMPANY'S

Ocean Westmoreland Gas Coal.

Offices:
Washington Building, New York.
Betz Building, Philadelphia.

STRICTLY High Grade. . . . .
Carefully Prepared.
For Gas Making or
Heavy Steaming.

A. C. M. AZOY, General Agent, 1 Broadway, New York.

Gulf Refining Company

REFINERS OF

TEXAS PETROLEUM

HIGH GRADE

GAS OIL

A SPECIALTY

REFINERIES AT
PORT ARTHUR, TEX

GENERAL OFFICES
FRICK BUILDING
PITTSBURG, PA

KELLER ADJUSTABLE COKE CRUSHER.

Strong, Simple, Durable. Will Crush any Size Desired.

C. M. KELLER,
Sec. & Supt. Gas Lt. & Coke Co.,
Columbus, Ind.
Correspondence Solicited.

Do You Wish to Know

what size of pipe to use to convey any quantity of gas, any distance, with any loss of pressure and any initial or final pressure? Then use

Cox's Gas Flow Computer,

as it gives this information accurately at sight, without mental effort. No calculations needed. Saves time, money and mistakes.

Price, 6.5 x 8 inches, in cloth case, $2.50. For sale by

A. M. Callender & Co., 42 Pine St., N. Y.

POOLE ON FUELS.

THE CALORIFIC POWER OF FUELS.

By HERMAN POOLE, F.C.S.

Second Edition. Price, $3. For Sale by

A. M. CALLENDER & CO., 42 PINE ST., N.Y. CITY.

BINDER for the JOURNAL.

Price, $1.00.

A. M. CALLENDER & CO., 42 Pine Street, N.Y.

EDMUND H. McCULLOUGH, President. CHAS. F. GODSHALL, Treasurer. H. C. ADAMS, Secretary. HENRY WHARTON, Assistant Secretary.

THE WESTMORELAND COAL CO.

Chartered 1854.

Mines situated on the Pennsylvania and the Baltimore and Ohio Railroads, in Westmoreland County, Pa.

POINTS OF SHIPMENT:

PHILADELPHIA, BALTIMORE, SOUTH AMBOY, N. J.,
WATKINS (SENECA LAKE), N. Y.

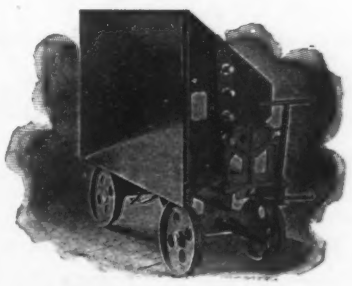
Since the commencement of operations by this Company its well-known Coal has been largely used by the Gas Companies of New England and the Middle States, and its character is established as having no superior in gas-giving qualities, and in freedom from sulphur and other impurities.

Principal Office, 224 South 3d St., Phila., Pa.

THE LINK-BELT MACHINERY CO.,

ENGINEERS, FOUNDERS, MACHINISTS,

Chicago, U. S. A.



Tilting Coal and Coke Car.

LINK-BELT ELEVATING & CONVEYING MACHINERY for HANDLING COAL, COKE, OXIDE, ETC.

Tilting Coal and Coke Cars, Breaker Rolls, Power Transmitting Machinery.

Machinery designed and erected to suit existing conditions and available space.

Special Catalogue No. 31 Sent upon Application.

PHILADELPHIA, LINK-BELT ENGINEERING CO.

THE SUN OIL CO.

Crude Oil, Gas Naphtha,
Refined Petroleum, Gas Oil.

Toledo, O., and Pittsburgh, Pa.

Standard Oil Company,

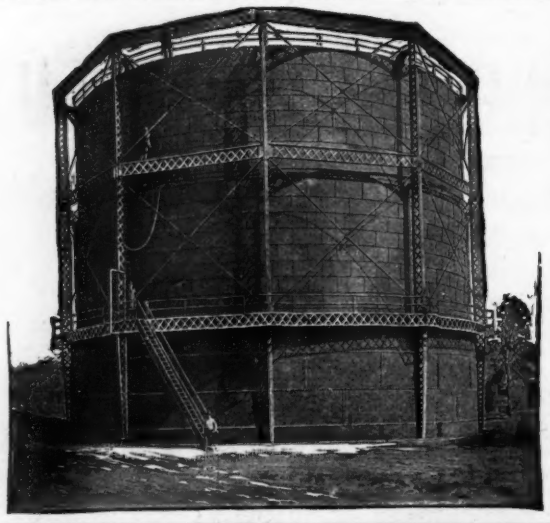
GAS NAPTHA DEPARTMENT.

GAS NAPTHA.

GAS OIL.

Correspondence Solicited.

26 Broadway, New York City.



DAVIS & FARNUM MFG. CO.,

WALTHAM, MASS.

Principal Office & Works, Waltham, Mass. Boston Office, R'm 18, Vulcan Bldg., 8 Oliver St.

Single, Double and Triple-Lift Gasholders of any Capacity. Tubular, Pipe and Sinuous Friction Condensers of all Sizes.

Steel Tanks for Gasholders, Iron Roof Frames and Floors, Purifying Boxes, Center Seal or Valve Connections, Bench Work, Reversible Lime Trays.

Self-Sealing and Pressed Steel Mouthpiece Lids.

Coke Barrows, Coal Wagons, and all Apparatus Requisite for a Complete Gas Works.

Also, Gas and Water Pipe. Flanged Pipe, Sugar House Work, and Special Castings of all Descriptions.

BAXTER & YOUNG,

CONTRACTING AND CONSULTING GAS ENGINEERS.

Examination and Values Ascertained of Artificial and Natural Gas Properties.

COMPLETE GAS WORKS ERECTED.

Artificial and Natural Gas Mains Furnished and Laid.

GAS PROPERTIES PURCHASED.

OFFICE: WAYNE COUNTY BANK BUILDING.

Rooms 201 & 202. DETROIT, MICH.

A. E. BOARDMAN, C. E.,

Consulting and Contracting Engineer.

Particular attention given to Gas, Water and Electric Plants. Long and successful experience with the problem and practice of

Filtration for Public Water Supply.

BREVARD, N. C.

Geo. Shepard Page's Sons.

GAS MACHINERY.

Correspondence Solicited.

180 Fulton Street, New York City.

DAVID LEAVITT HOUGH,

Consulting Engineer

AND

CONTRACTOR,

PARK ROW BUILDING, N. Y.

Practical Photometry,

By William Joseph Dibdin

Price, - - - - $3.00.

FOR SALE BY

A. M. CALLENDER & CO.,

No. 42 Pine Street, New York City.

KERR MURRAY MANUFACTURING COMPANY,

Engineers and Manufacturers

APPARATUS FOR COAL GAS PLANTS,

SINGLE AND DOUBLE-LIFT GASHOLDERS AND STEEL TANKS,

Latest Improved

ROTARY EXHAUSTERS, P. & A. TAR EXTRACTORS, AMMONIA WASHERS,

CONDENSING, SCRUBBING AND PURIFYING APPARATUS.

Street Specials and Valves.

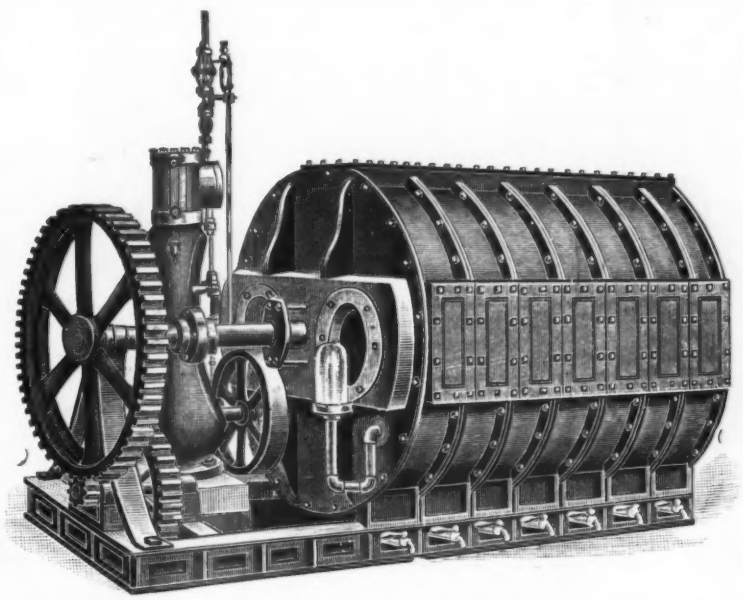
ADDRESS:

KERR MURRAY MANUFACTURING COMPANY, { FORT WAYNE, IND.

BARTLETT, HAYWARD & CO.

BALTIMORE, MD.

Designers and Builders of Gas Works.



Sole Lessees the Wilkinson Water Gas Process.

PATENT STANDARD WASHER-SCRUBBER.

The best apparatus for the extraction of all Ammonia and a large proportion of Carbonic Acid and Sulphureted Hydrogen. The Scrubber has been materially improved and is provided with patented Wooden Segmental Grids, instead of Metallic Discs, thus reducing the weight on shaft and power for operating same.

Coal and Water Gas Installations of the Most Modern and Complete Types.

BENCHES WITH INCLINED RETORTS.

System Stettiner Chamotte Fabrik, Actien Gesellschaft, of Stettin, Germany.

GASHOLDERS OF ALL SIZES.

General Western Agents, THE LLOYD CONSTRUCTION CO., of Detroit, Mich.

QUINTARD IRON WORKS,

N. F. PALMER

Foot of 12th St. & East River, New York,

MANUFACTURERS OF

GAS APPARATUS.

Complete Works Erected.

FREDERICK W. FLOYD, Engineer.

ALEX. C. HUMPHREYS, M.E., M. Inst. C.E. ARTHUR G. GLASGOW, M.E., M. Inst. C.E.

HUMPHREYS & GLASGOW,

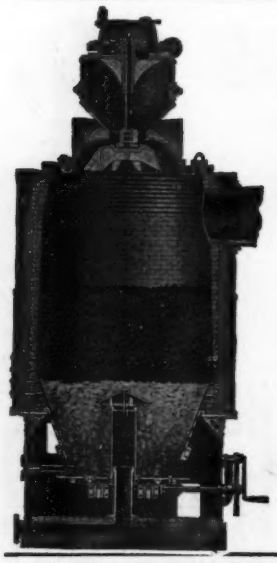
BANK OF COMMERCE BLDG., 31 Nassau Street, New York.

38 VICTORIA STREET, London S.W., England.

CONSULTING GAS AND ELECTRIC LIGHT ENGINEERS.

PROPERTIES PURCHASED.

COMPLETE EXAMINATIONS MADE.



R. D. WOOD & CO.,

400 CHESTNUT STREET, PHILADELPHIA,

—BUILDERS OF—

Gas Power Plants with Producers,

The best Producers for either Bituminous, Anthracite Coal or Lignite. Less labor required and less waste than in any other Producer. Send for Pamphlet. : : : :

CAST IRON PIPE.

HYDRAULIC TOOLS. HYDRAULIC OPERATING VALVES.

ISBELL-PORTER CO.,

ENGINEERS AND CONTRACTORS FOR THE

Construction and Extension of Gas Works.

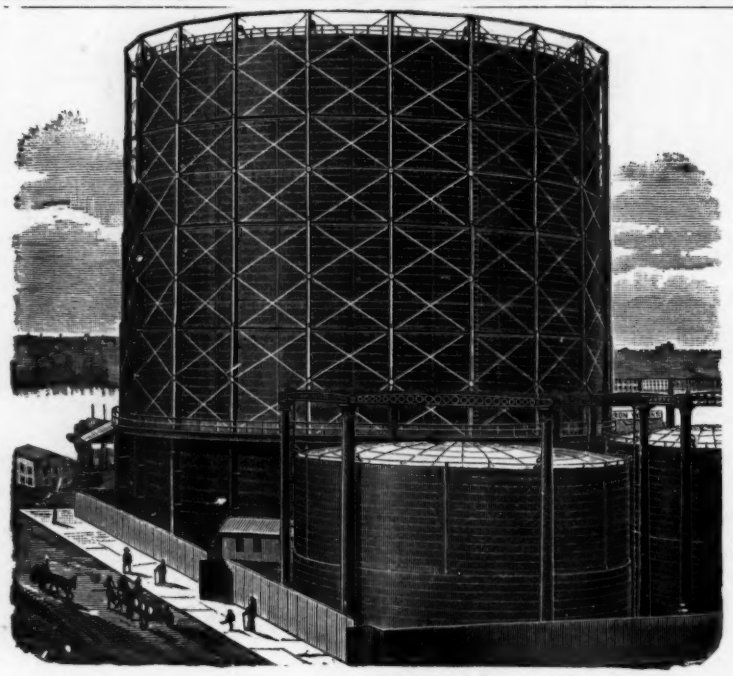
FOUNDERS AND MACHINISTS.

MANUFACTURERS OF

All Ironwork and Machinery Required in a Gas Plant.

Estimates, Drawings and Specifications furnished for the Alteration, Improvement, or Extension of Existing Works or the Construction of New Works.

245 Broadway, New York City. —OFFICES— Bridge & Ogden Sts., Newark, N. J.



The Continental Iron Works,

THOMAS F. ROWLAND, President.
WARREN E. HILL and CHAS. H. CORBETT, Vice-Presidents.
THOMAS F. ROWLAND, JR., Secretary & Treasurer.

West and Calyer Sts. (Near 10th & 23d St. Ferries)
NEW YORK, Borough of Brooklyn.

BUILDERS OF

Gas Holders.

Single and Multiple Section Gas Holders a Specialty.

STEEL GAS HOLDER TANKS.

BENCH CASTINGS, RETORT LIDS.

Hydraulic Mains, Condensers, Scrubbers, Purifiers, Valves, Etc.

Self-Sealing Retort Mouthpieces & Lids

For Round, Oval, or "D" Retorts.

THE GAS ENGINEER'S LABORATORY HANDBOOK,

By JOHN HORNBY, F.I.C.

PRICE, - - - - - - - $2 50.

A. M. CALLENDER & CO., No. 42 Pine Street, New York City.

THE STACEY MANUFACTURING CO.,

MANUFACTURERS OF

Gasholders, Steel Tanks,

AND ALL IRONWORK & MACHINERY REQUIRED IN A GAS PLANT.

ALSO THE ONLY AUTHORIZED MANUFACTURERS OF

The Chollar System of Gas Purification.

OFFICES:

No. 239 Mill Street, CINCINNATI, OHIO. 'Phone, West 690.

PLANS, SPECIFICATIONS AND ESTIMATES CHEERFULLY FURNISHED.

RITER-CONLEY MFG. CO.,

GASHOLDERS, with or without Steel Tanks.

Purifiers, Condensers, Scrubbers, Oil Tanks, Smoke Stacks

STEEL ROOFS and BUILDINGS.

PLATE AND STRUCTURAL WORK OF EVERY DESCRIPTION.

GENERAL OFFICE: Pittsburg, Pa. EASTERN OFFICE: 39-41 Cortlandt St., New York City.

WM. HENRY WHITE,

No. 62 Wall Street, - - - New York City.

ENGINEER AND CONTRACTOR FOR THE

ERECTION AND EXTENSION OF

GAS, WATER, AND ELECTRIC LIGHT WORKS.

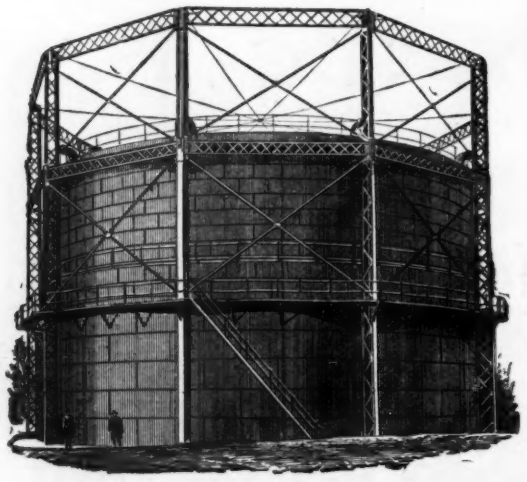
Correspondence with Gas Companies contemplating extending or improving their Plants respectfully invited.
Plans and Estimates Furnished.

1902 DIRECTORY 1902

OF AMERICAN GAS COMPANIES.

Price, - - - - - - - - $5.00.

A. M. CALLENDER & CO., - - No. 42 Pine Street, New York.



1842 ※ Deily & Fowler, ※ 1903

LAUREL IRON WORKS.

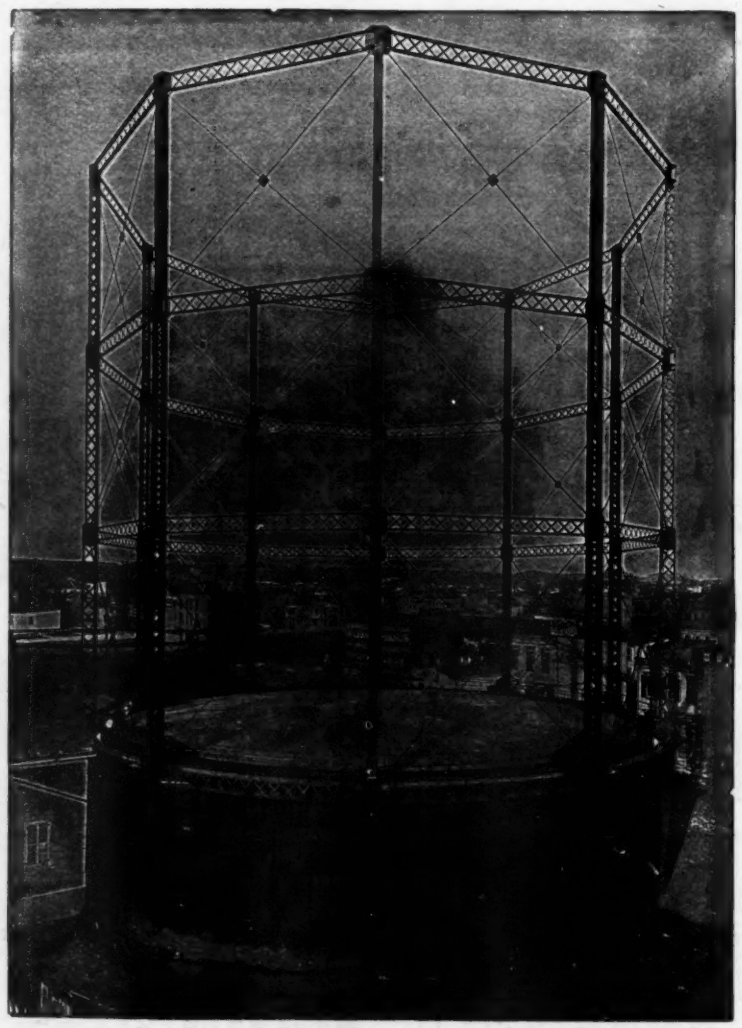
Office, No. 39 Laurel Street, Philadelphia, Pa.

BUILDERS OF

Gasholders

Single or Telescopic. With or Without Iron or Steel Tanks.

OIL TANKS, WATER TANKS, AND GENERAL WROUGHT IRON WORK.



The order for this Triple-Lift Holder and Steel Tank was received by the Logan Iron Works from the Union Gas Light Company, of East New York. The contract was completed and the Holder was in actual use in 90 days from receipt of order. Capacity of Holder, 500,000 Cu.Ft.

LOGAN IRON WORKS,

Brooklyn, N. Y.

MANUFACTURERS OF

Single or Multiple-Lift

GASHOLDERS,

Complete with Steel Tanks.

BENCHES, SCRUBBERS,
CONDENSERS,
PURIFIERS, IRON ROOFS,
Self-Sealing Retort Lids,

AND ALL PARTS OF

GAS WORKS APPARATUS.

Contractors for Complete Works.

ALSO, SOLE MANUFACTURERS OF

C. W. BLODGET'S
HOT GAS SCRUBBER.

Gas Analyst's Manual,

By JAQUES ABADY, M. Inst. Mech. E.

(Incorporating F. W. Hartley's "Gas Analyst's Manual" and "Gas Measurement.")

Ninety-three Illustrations and Nine Folding Plates.
Bound in Handsome Half Leather. Price, - $6.50.

FOR SALE BY

A. M. CALLENDER & CO., - - 42 Pine Street, New York City.

Established 1854.

D. McDONALD & CO.,

MANUFACTURERS OF

WET AND DRY METERS, STATION METERS AND METER PROVERS.

ALSO MAKERS OF

THE GLOVER PREPAYMENT METER.

The amount of gas delivered for the coin can be instantly and positively changed without removing the meter or replacing any parts.

The gas registered agrees absolutely with the amount purchased by the coin.

WE HAVE MADE AND SOLD IN THE UNITED STATES

OVER 120,000 OF THESE METERS,

ALL OF WHICH ARE GIVING PERFECT SATISFACTION.

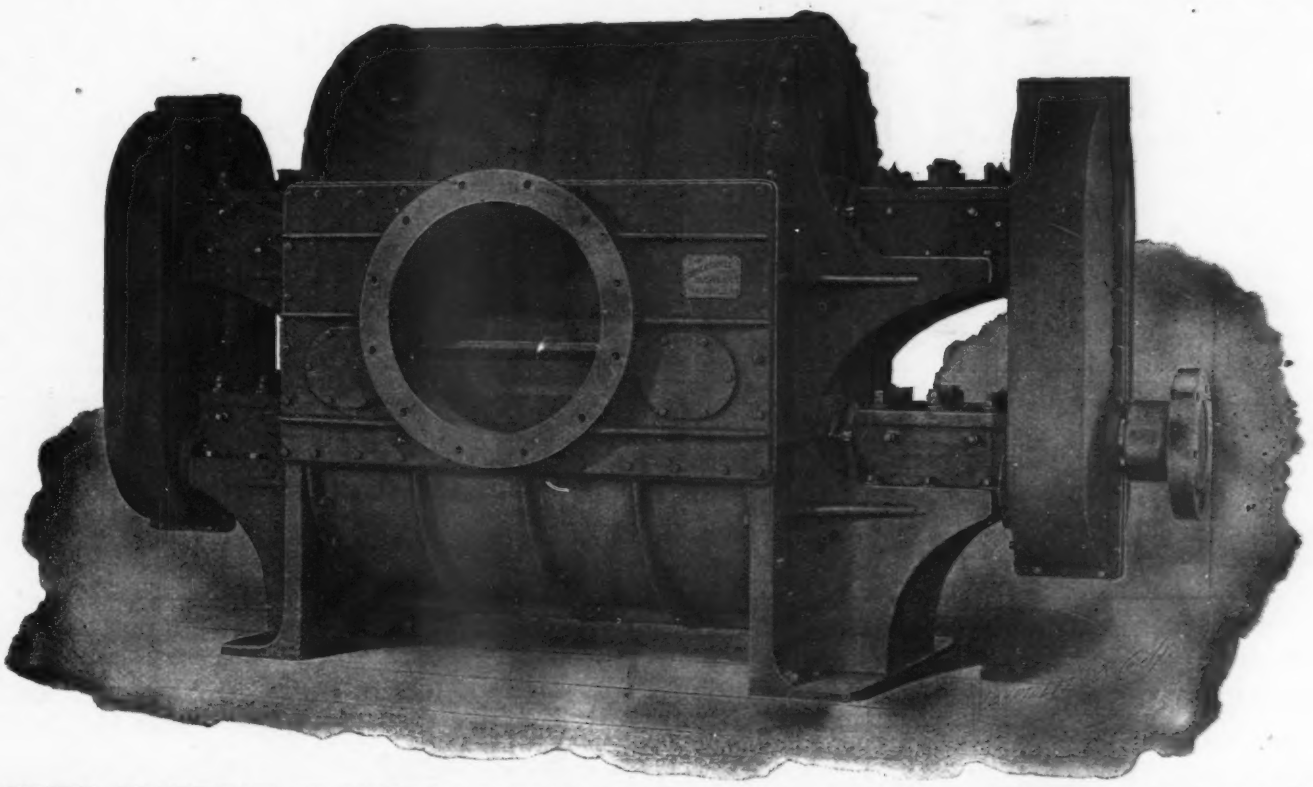
Correspondence Solicited

561 West Forty-seventh Street, NEW YORK. | 51, 53 & 55 Lancaster Street, ALBANY, N. Y. | Jefferson and Monroe Streets, CHICAGO.

THE CONNERSVILLE BLOWER CO.,

MANUFACTURER OF

ROTARY POSITIVE PRESSURE GAS EXHAUSTERS, BLOWERS AND PUMPS.



HORIZONTAL OR VERTICAL, IN CAPACITY RANGING FROM 9,000 to 1,800,000 CU. FEET DISPLACEMENT PER HOUR.

CONNERSVILLE BLOWER CO., Connersville, Ind. EASTERN SALES OFFICE: 95-97 Liberty St., New York City.

NATHANIEL TUFTS METER CO.,

ESTABLISHED 1849.

8 MEDFORD STREET, BOSTON, MASS.

Consumers' Dry Gas Meters.
Station Meters of Any Capacity.

PREPAYMENT GAS METERS.

MARYLAND METER CO.,

BALTIMORE, North and Saratoga Streets. CHICAGO, 88 to 92 Jackson Boulevard.

CONSUMERS' AND STATION METERS, PRESSURE GAUGES, ETC.

SPECIAL ATTENTION GIVEN TO ALL REPAIR WORK.

"Have you Seen our Complaint Meter?"

ANTICIPATE YOUR WANTS

Just now, as the freight traffic is so congested it is no longer safe to count on a prompt delivery, then send us your orders for immediate attention, and we will fulfill your happiest anticipations.

KEYSTONE METER CO.,
ROYERSFORD, PA.

FIELD'S ANALYSIS
For the Year 1901.

An Analysis of the Principal Gas Undertakings in England, Scotland and Ireland. Being the 33d Year of Publication. Compiled and Arranged by

JOHN W. FIELD,

Secretary and General Manager of The Gas Light and Coke Company, London

Price $5. For Sale by
A. M. CALLENDER & CO., - No. 42 Pine Street, N. Y. City.

AMERICAN METER COMPANY,

NEW YORK, PHILADELPHIA, CHICAGO,
SAN FRANCISCO, ST. LOUIS.

PREPAYMENT METERS.

THEIR CONSTRUCTION IS SUCH THAT THEY MAY BE READILY READJUSTED WHEN THE SCALE OF GAS RATES IS CHANGED.

HELME & McILHENNY,

Established 1848. **1339 to 1349 Cherry Street, Philadelphia, Pa.**

MANUFACTURERS OF

Wet and Dry Gas Meters, Station Meters, Provers, Gauges, Etc.

METERS REPAIRED

PREPAYMENT GAS METERS.

Our Own Patents. Strong. Simple. PROMPT ATTENTION. CORRESPONDENCE SOLICITED

METRIC METAL COMPANY,

MAKERS OF

GAS METERS for NATURAL and ARTIFICIAL GAS.

Special Attention given to Repairing METERS of all Makes.

FACTORY AT ERIE, PA.

EXCERPTS FROM DECISIONS

—OF THE—

BOARD OF GAS COMMISSIONERS of the COMMONWEALTH OF MASSACHUSETTS.

MR. E. H. YORKE, NEW HAVEN, CONN., Dec. 1, 1898.

Dear Sir:—I am in receipt of a copy of "Excerpts from the Decisions of the Board of Gas Commissioners," which is a handy compilation in book form of extracts from the most recent decisions of the Gas Commission of Massachusetts.

I note that most of these extracts are broad and safe-guiding precepts, which apply with equal force to one Company as to another. The 13 years' existence of the Board of Gas Commissioners with its unusual opportunities for acquiring information, have justly made it a high and safe authority in all matters pertaining to the management, obligations, and rights of Gas Companies. Your little book will serve as a valuable reference library in settling legal complications which often arise between a Gas Company and its customers.

Yours truly, (Signed) F. C. SHERMAN, Superintendent.

A 28-page Pamphlet containing the cream of this Board's decisions as to the proper management of Gas Companies.

Compiled by E. H. YORKE. Price $1.00. Address

A. M. CALLENDER & CO., - No. 42 Pine Street, New York.

We are now recovered sufficiently from the effects of Our Recent Fire to fill orders promptly.

JOHN J. GRIFFIN & CO.,

1513-1521 RACE ST., PHILADELPHIA, PA.

NEW YORK:
559 West 47th St.

CHICAGO:
Jefferson and Monroe Sts.